The AGRICULTURAL EDUCATION Magazine

The Agricultural Education Magazine

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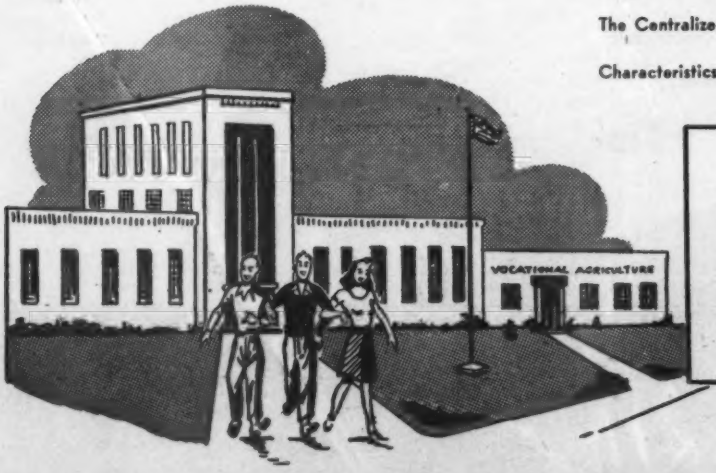

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Editorials

No Utopia

THE best way, so-called, may be fatal. Teaching farm management or for that matter other areas of knowledge is most likely to progress as we encourage differences among teachers. To standardize on a best teaching process to be adopted by all teachers could compound weaknesses, impede progress, and kill that spark of creativity which kindles professional spirit.

We, as teachers, cherish the right to differences in process for ourselves and others. We believe that allowing, yes, even encouraging, such differences is essential to the continuing improvement of our services. Such a privilege is the mark of a profession—for to standardize process is to move in the direction of a trade. The right to differ keeps us, individually, on our toes working for more efficient ways of teaching.

How to teach farm management or for that matter precisely what should be taught at a given level is debatable. We feature such problems in this issue to emphasize the differences and to point-up the innovations developed by teachers, rather than to present some utopian answers. It is an area of our teaching in which there is much difference in technique among teachers. While some feel that they have hit upon a best way of teaching it for themselves, many are far from satisfied. Those seeking to improve their performance in this area may profit from the experiences and suggestions of others which are reported in this number.

School-leavers

JOHNNIE and, let's see, how many others have quit our classes in the past few months? One, two or three? Certainly one would say not very many in any given school. Correct, but in any given year the total number probably exceeds the number of students who are graduated. It is therefore of some importance that we should be concerned with the problem of drop-outs or early school leavers. Two questions are paramount: (1) What can be done to make school more attractive and vital to these boys? and (2) What can or should we do for those who have left school?

Making school more functional to them is a job for the entire faculty. First, however, we can check on our own program to make sure that it is in high gear. Are we giving everyone in the group the opportunity for participation? Do we recognize the efforts and contributions of each pupil? Which boys are unresponsive? Which ones seem downright unhappy? Have we taken time to try and reach them—to discover their interests and abilities? A little attention on our own part can be a beginning to an attack on the total problem with the help of other faculty members.

A number of studies have brought out the fact that many of the drop-outs enter farming—in some cases in even higher proportion than do the graduates. Perhaps the situation has changed. However a quick check with class members would more than likely reveal a surprising number of boys under 18, working on farms. Whether or not we do anything at this time for the group depends on the local situation. We have to admit that they constitute an important segment of the youth population and that we, at least to some extent, have failed them once. Dare we to do so again?

To reduce the rate of drop-outs and to provide some means of helping those who do drop-out are among the most challenging problems faced by teachers today. We need pioneering in these areas. We need to share the findings of these pioneering efforts with others.

Profits vs. family goals

IT IS commonly said that we teach farm management to help the individual maximize profits. Such a purpose is satisfactory in the cases where maximizing profits constitute the best means by which the farm family may achieve its high priority goals. Since teachers of agriculture deal, to a large extent, with individual farmers and farm families, they are in a position to direct much of their instruction in terms of the goals of individual families. As a matter of fact this probably is not far from the average teacher's *modus operandi*. Furthermore, even though maximizing profits is included as a central concept of farm management by those in the profession, most of them would not quarrel too much with the idea that the central purpose should be helping the farm family achieve its goals through the way in which the farm is organized and managed.

There does seem to be a danger in placing all of our emphasis on maximizing profits. The danger lies in the failure of individuals to see the consequences of certain courses of action. More profits to buy more land to make more profits is a cycle which does not necessarily turn out the real goals of the farm family.

Such goals, as providing education for the children, enjoying some leisure time, providing a place for the new generation to live, maintaining land, grounds, and buildings in tip-top shape—providing special incentives to maintain interest of youth in farming and many others which could be mentioned, often are not positively related with maximizing profits. In other words, farm families who are solely concerned with maximizing profits may not be concerned with such ends. Yet, the truth of the matter is that many farm families are working to achieve just such goals. Isn't our problem as teachers, in part, one of helping the individuals and families to define and evaluate their goals; and, in part, helping them to organize and manage their farm business in such a way as to give the greatest possibility for achieving their goals?

Obviously, some of the goals require money-profits as a means. Quite clearly, in other cases, the actual long-term profits might fail to reach the maximum had the family chosen to make profits in dollars the central goal. It is important therefore, to work for full understanding of how changes in organization and management are related to family goals. Until such understanding is obtained, there is little assurance that education in how to organize and manage the business, will make much of a contribution.

Maximizing profits is a worthy end but maximizing the family's chances for reaching their goals would seem to be broader and more worthwhile. Much has been done to increase human happiness through more efficient management aimed at profits. Much, also, can be done to maximize farm family realization of goals with an extended concept of the purpose of farm management and its teaching.

Season's Greetings

What emphasis . . . in farm management teaching?

RAYMOND R. BENEKE, Associate Professor of Farm Management and
DUDLEY L. PEERY, Graduate Student, Iowa State College

THE importance of training in dealing with the economic problems involved in farming has come to be widely recognized by workers in vocational agriculture. Events of the past two decades have given impetus to an increased emphasis on this aspect of the training of prospective farmers. Practically all programs of vocational agriculture now make some provisions for the teaching of farm management principles. However, the experience of the authors in teaching vocational agriculture suggests that the work in this area is less well defined and organized than are the other phases of the program. This hypothesis is supported by a review of the literature concerned with the role and the content of farm management training in vocational agriculture.

This article first examines the purposes and need for training in the farm management area and then reports the results of a study designed to provide vocational agriculture teachers with some added basis for determining the content and emphasis of work in farm management. Finally some of the problems in developing effective teaching methods and techniques in this area are discussed.

Aiming At Proficiency

One of the primary aims of vocational education in agriculture is to train young men for "proficiency in farming." Certainly the fundamental criterion of proficiency must be the ability to use available farm resources (land, labor and capital) efficiently. For the individual farm operator this means aiding him to use his resources in such a way as to maximize long-run net income. For all consumers enhancing the financial position of individual operators through improved farm management results in greater abundance and lower costs of agricultural products. Hence, leading the individual toward an improved income level is also an appropriate intermediate goal for a program aimed ultimately at serving the higher purpose of improving the welfare of everyone. Placing emphasis upon teaching young farmers to maximize income does not conflict with other objectives of the vocational agriculture program if proper deference is shown the individual's own evaluation of financial safety, leisure and other forms of non-monetary income. Indeed the attainment of broader goals of the program as for instance attaining improved levels of rural living or developing enlightened rural leadership is facilitated by greater farming efficiency and increased income.

Efficiency in the use of resources and financial success in the highly complex farm business of today demands more than a careful adherence to recommended or improved practices. Skill in controlling disease, lubricating and operating farm machinery, selecting livestock, cultivating crops and carrying out the multitude of other improved farm practices is not enough. Fully as important is skill in working out leasing agreements, using farm credit, combining crop and livestock enterprises, timing the production and marketing of farm products and adjusting to farm risks. Consistently faulty decisions in these areas certainly will lead to financial mediocrity or failure in spite of a proficiency in the technical phases of farming. Every community has examples of farmers who are proficient in carrying out farm operations and in applying improved practices, but who do not attain financial success because they cannot cope effectively with crucial economic problems.

Weighing Alternatives

No greater challenge faces the teacher of vocational agriculture than that of converting the student who thinks in physical terms and is "improved practice" and "enterprise" conscious into an enterpreneur who weighs alternatives in terms of returns to the whole farm business. To do this the study of technical problems must be integrated with a consideration of the farm management principles which will enable the student to weigh alternative decisions in terms of their effect on returns to the whole farming operation. Considering the economic and technical problems together gives direction to the study of the technical aspects of farming. For instance the study of cropping systems will be much more meaningful if cost and returns aspects are considered along with yield and soil loss relationships. Similarly in livestock feeding realistic decisions necessitate attention to the price ratios of various feeds in addition to the attainment of some physical balance of nutrients. While we would find almost universal agreement on the proposition that a productive enterprise should be organized and managed to contribute to a maximum income for the farm as a whole, it is not difficult to leave the impression with students that the important consideration is the attainment of one or more physical goals. As examples of the pitfalls to which emphasis on strictly physical criteria sometimes leads one may cite the divergence between maximum profits and attempts to maximize yield of corn per acre and pigs weaned per litter. Beyond a point the yield of corn can be increased only by lengthening the rotation and by heavy inputs of fertilizer and labor. The inevitable result of indiscreet adherence to this physical criterion can only be a lower total production of corn at an increased cost per unit of output. Stress upon the attainment of a high average litter size may be in conflict with maximum farm income where large litters are attained at the expense of limiting the size of the swine enterprise or where labor must be diverted from competing enterprises on the farm.

An integration of the study of physical production relationships with their economic aspects can help overcome the temptation to over-simplify farm decisions by leaning on strictly physical criteria or convenient "rule of thumb" economics. No doubt much of the skepticism and even outright resistance which "book farming" encountered in the early days of agricultural education was rooted in the failure to adequately integrate the technical and economic aspects of farming.

Selection of Evaluators

If the vocational agriculture program is to be effective in developing efficient farm managers what should the training in the farm management area include and with what emphasis? In order to provide teachers of vocational agriculture with a better basis for answering this question, the authors consulted fieldmen and former fieldmen of the farm business associations affiliated with Iowa State College and a number of successful farmers. The appropriate training in farm management for the oncoming generation of farmers depends upon the kind of problems with which they will have to deal and in their relative importance and complexity. These are propositions that do not lend themselves to empirical test. Consequently one must depend upon the considered judgment of individuals whose experience and training is such as to give them insight into the economic decisions that young farmers will be called upon to make. The two groups consulted were regarded as being particularly well qualified to render judgments of this sort. The seven association fieldmen and the three former fieldmen consulted were not only well qualified through training but in addition had had considerable experience in working with many farmers on an individual basis through their activities with the farm business associations. The ten farmers whose opinions were sought were selected principally upon their demonstrated ability to manage the resources available to them in such a manner as to maximize returns. To aid in their selection farm accounts and farm business analyses were available on a large number (400-500) Iowa farms for a period of several years. These accounts coupled with the opinion of the farm business association supervisors as to the competence of individuals to deal with the problems being studied formed the basis for the selection of the ten farmers.

Farm Management Decisions

A suggested list of decisions which confront prospective young farmers in establishing and organizing a farm was prepared by the authors with the aid of several other farm management research workers at Iowa State College. These suggestions were then submitted to the association fieldmen and the group of farmers who were asked to add any

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Aerial photographs by instructor, Dalgleish, and Bates for use in teaching farm management.

Aerial Photography

Aids in teaching farm management

DUANE W. DALGLEISH, Teacher,
Owosso, Michigan

TO MY knowledge, little use has been made of aerial photography in the teaching of vocational agriculture. I am not speaking of government sponsored aerial survey pictures taken vertically from high altitudes in which only the major physical features can be seen. I refer to oblique views taken at heights of one to two thousand feet with a good camera capable of producing negatives which can be enlarged to a sharp 8" by 10" print. I have found this type of picture to be one of the best methods of stimulating interest in my classes in the home farm problems of field layout, drainage, erosion control, soils, etc.

Best use of these pictures can be made by using pliofilm cut to the exact size of the print, placed over the picture and held securely with masking tape to the desk or table before the student. If the pliofilm has a tendency to curl the tape may be placed along the entire edge as the pliofilm must lie flat against the print. Since the pliofilm is perfectly transparent the picture under it can be studied in minutest detail. For planning rearrangement of fields, laying out tile lines, labeling soil types and many other uses where plainly visible marks need to be made, a grease pencil works perfectly. The marks or lettering stand out over the picture in bold relief and are very easily removed by wiping off with a piece of cloth or paper toweling. Thus the student may use his home farm aerial view and the pliofilm over and over again without additional materials.

Problems involved in getting and financing aerial views for classroom work may not be so insurmountable as at first supposed. Of course, many of the younger vocational agriculture instructors do know how to fly, and those who own their planes need only to have a friend with a good camera to obtain these aerial shots rather cheaply. Or the instructor may be the photographer with a friend who flies working with him on the project. It is best if the agriculture instructor can either fly or handle a camera, as he alone is familiar with the farms he wants to photograph. In the event that he neither flies nor can operate a camera, another possible solution is that he ride along as a passenger and direct the pilot and cameraman to the proper locations and angles. At any rate, many of the boys and their parents are much interested in securing copies of the aerial views of their own farms once they have seen them, and by dividing the total cost of getting all the pictures taken by the number wanting pictures, the expense may be entirely absorbed by the sale of the pictures to the individual students.

In securing aerial pictures for classroom use at Owosso high school, I obtained the services of Mr. Russel Bates, high school history and photography teacher. Being a flying enthusiast myself, I had observed many erosion problems while flying over the farm land of this community. I invited Mr. Bates to take a ride with me one day and bring a camera along to get some pictures of these erosion conditions. He took a number of pictures with his Speed Graphic and they turned out so well and the boys in my agriculture classes were so interested in them that

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Farm management class checks with the County Registrar of Deeds.

Teaching farm management

JOHN W. PERKINS, Teacher, Neillsville, Wisconsin

J. W. Perkins

MANY teachers have the opinion that farm management is a difficult subject to teach to high school students. It is claimed that the unit does not appeal to the boys and thus results in a dull, dry class procedure. My first attempt at teaching the subject left me dissatisfied with the results. I found I was teaching a routine textbook course that fell far short of solving the problems of managing a farm. On the other hand, farm management semed to be the life of my young farmer classes. Undoubtedly this was due to the fact that these older, out-of-school young men were, for the most part, getting started in farming, and we were using their farms and their problems as the basis for teaching farm management, while with the high school group, discussion centered around the textbook. I decided to try to imitate in my day-time classes the conditions that existed in my young farmer group in order that I might use a more practical and appealing teaching procedure. Farm management then became a process of solving the problems of establishing each individual student in farming on a definite farm and then solving the problems of operating that farm. I have used the method for a number of years with very satisfying results. Student interest has been increased to the point that farm management is now the most popular phase of the vocational agriculture course. It is the climax to the high school program.

Under this procedure the student establishes himself in an imaginary he feels would suit him and engages in the type of farming he thinks best. He carefully maps his farm and takes a real estate inventory.

The boy may stock and equip his farm any way he wishes. However, he is warned that he must pay all expenses as an actual farmer would. He is allowed a limited amount of starting capital, but beyond that point, the farming business must be financed and paid for in the usual manner.

The student will likely desire to buy the farm he has selected, but due to his limited capital, he will be unable to finance the purchase and will turn to renting. He will study with enthusiasm the types of tenancy, desirable rental contracts, etc., as he wishes to obtain possession of the farm he has selected and show that he can manage a profitable farming business. Class discussion becomes spirited as the members seek the solution to their problems. A written farming business. He selects a farm that lease is prepared by the student, and the farm is operated by this agreement.

A crop rotation is developed for the various fields on the farm. The study of rotations is no longer a dull, uninteresting subject. Instead, it has become alive as the boy strives to switch his crops from field to field and produce the feed needed for the livestock he plans to keep. If his management is not sound at this point, he may experience difficulty as he operates his farm. For example, he may find he has set up a rotation that leaves him far short on hay and pasture for his livestock.

The student estimates what he can produce on his farm. This involves studying the county statistical bulletins for crop yields and other information. The feed requirements of the livestock will also be determined. As he develops his plans, he keeps a record of estimated receipts and expenses so the financial results can be determined. In other words, the boy is trying to figure out what he can do with the farming business he has set up. The plans and results are continually being analyzed during class discussion and individual conferences.

Checking and Comparing Work

After all students have completed their plans, the work is audited and checked for errors in judgment. At this time a wonderful opportunity exists for a discussion of the different types of farm businesses, size of operations, and methods of management.

As the student develops a sound farming business, he usually shows great interest in buying the farm, so that he can exercise complete management. As he analyzes his plans, he should be able to appraise the prospect of gaining enough resources to make the purchase. When he is ready to buy, he must state the amount he is willing to pay for the farm he has selected. His bid, farm maps, and real estate inventory are turned over to an appraisal committee consisting of three members of the class and the instructor in agriculture. This committee decides whether the boy can buy the farm for the price he has offered and, if not, sets a price for which it can be purchased.

Students review the legal description of farms which they have selected.

The student must next finance the purchase of his farm. At this point farm financing is studied. The boy is not allowed to go ahead with the purchase unless he can provide a written plan for financing that will be accepted as workable.

The next step is to take care of the legal papers that are necessary for him to obtain ownership of the farm. At this point the class studies such things as mortgages, deeds, abstracts, land description, etc. The student will prepare a copy of the deed and mortgage for his farm. The class visits the office of the county registrar of deeds to get a better understanding of this procedure.

As an owner the student will have complete management of the farm. He will be able to do many things that were not possible or feasible as a renter. He will now work out a long time plan for managing and developing his farming business. He now has an opportunity to show his real managerial ability as he develops his plan.

Individual and Class Work Combined

Although each student in the class is working with a different farm during the study of farm management, it is important that all follow the same procedure and progress at a uniform pace in developing the plan. Otherwise, organized class discussion is difficult. The unit must be well planned by the teacher and the students in order to get satisfactory results with this procedure. I have found it advisable to introduce a problem and then let the students work individually until someone experiences a difficulty that is certain to be encountered by all. For example, students will find it important to be able to read land descriptions as they prepare the legal papers for gaining possession of their farms. When the first individual needs help in reading land descriptions, it is pointed out to the class that all of the members are going to experience this difficulty and it would be best to take time now to solve this problem. Likewise, as other matters come up, the class seeks help from insurance agents, bankers, attorneys, the registrar of deeds, and soil conservation technicians, all of whom can be very helpful in solving the many management problems involved.

This method of teaching farm management improves my teaching of the unit in a number of ways:

1. Increases student interest. Problems are studied because the student has encountered them in managing a farm rather than because they are in the textbook.
2. Stresses the important problems in operating a farm and eliminates non-essential items.
3. Enables the student to make errors in managing a farm without serious consequences. Errors made in managing the imaginary farm can be avoided later in actual farming.
4. Provides a plan for becoming established in farming. Many former students have stated that they used their farm management plan as a guide when becoming established in farming. ●

Problems of teaching farm management

S. EDWARD WILMOT, Teacher, Fillmore, New York

DURING college careers most vocational teachers become acquainted with the farm management department at the state college of agriculture. These departments do a great service in bringing to our attention the problems of management in farming on the college level. We in turn hope to be of service in bringing these same problems to the minds of students in vocational agriculture on the high school level.

The students in high school are boys, not adults. The business of managing a farm is an adult proposition. Our subject is called vocational agriculture, and for the most part, boys can get practical experience and learn by doing. In the area of farm management, however, this will not be true.

For our purpose farm management is dealing with farm organization and the decisions affecting the general organization of a farm business. The points usually considered are size, efficiency, rates of production, and the layout of the farm as a business unit. The problem now arises as to how are we going to get the boy thinking clearly along these lines when he as a rule has never had any experience with the management of a farm. True, he may have had projects of his own, and even parts of the farm business as his responsibility, but rarely has a high school boy been in direct contact with these big problems of management. There will be exceptions, of course. To make the situation more complicated, 98 per cent of the boys with whom we work won't be able to actually make their decisions until they themselves have become farm operators.

How can we develop techniques of management without having students actually manage a farm?

Comparing and Contrasting Farms

In the agricultural classes at Fillmore Central Schools we have tried to get away from learning farm management statistics and we spend our time in seeing how farms are managed and what the result has been in returns to the farmers. Our purpose is to develop ideas about size, efficiency, rates of production, and layout of farms rather than detailed memorization of farm management data. Later when these boys actually have farms to manage, they may be able to use some of the ideas developed in school in aiding them to think more clearly on their management problems.

Basically there are four general parts to our method of developing ideas of farm operation with the boys. *First*, the student has to become familiar with farm management measures and terms. This gives us a basis for a common understanding of the subject which we are studying. *Second*, the boys are encouraged to ask why things are done as they are at home. Even though he may not have much to say about the management of the home farm, he should try to get his father's reasons for decisions made. This will often require a talk with the father to have an understanding of what you are trying to do at school. The *third* part of our training involves the class visiting each boy's home farm and studying it from an organization point of view. The boys like this way of getting acquainted with farm management as they have a personal interest in the farm. Visits are also made to other farms so the fellows can get a broader picture of what is being done in our area. *Finally*, each student reorganizes his home farm business as he would have it if he were the manager.

From the true sense of the word, this is not vocational training. The boy actually does not carry out all of his plan; in many cases, none of it is carried out and he leaves the home farm and doesn't return to farming until later in life. But, we do find that this training develops ideas on farm management. ●

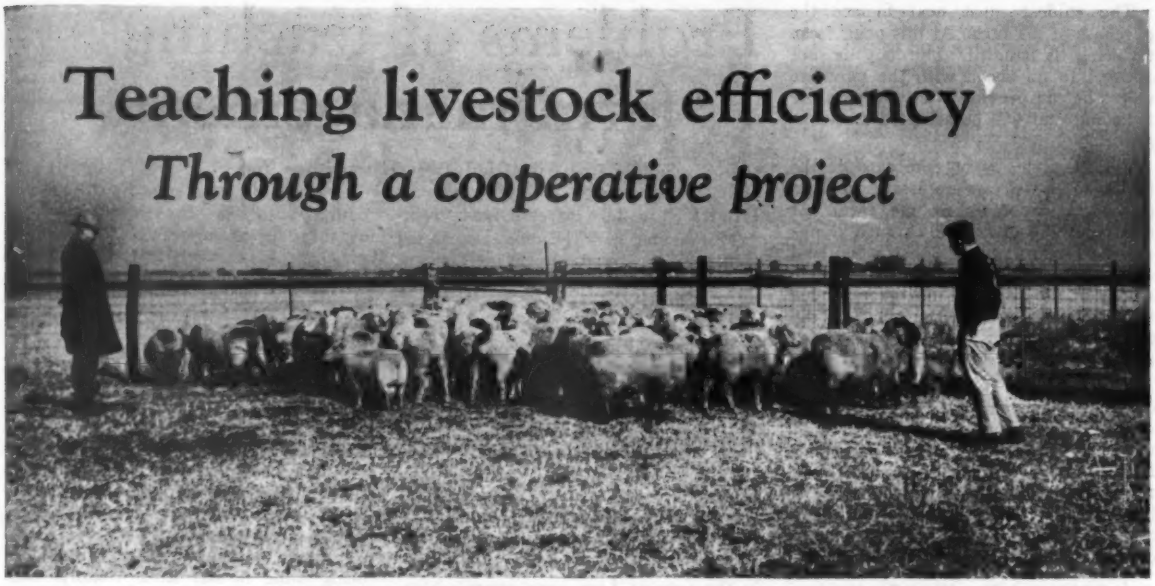
Anderson awarded Fulbright grant to England

DR C. S. ANDERSON, Professor of Agricultural Education at the Pennsylvania State College has been awarded a research professorship in the United Kingdom under the provisions of the Fulbright Act, according to announcements made by the Department of State and the Conference Board of Associated Research Councils in Washington, D. C.

Dr. and Mrs. Anderson will go abroad at the beginning of the spring semester. He will join the faculty of the University of Reading, Reading, England for one year. His research investigations will be in the field of rural adult workers education. He expects to gather data from a representative sampling of farmers and rural workers at the grass roots level in England, Scotland and Northern Ireland. He is particularly interested in studying the British ways and means employed to bring the results of agricultural research to the functional level of the farmer.

C. S. Anderson

Teaching livestock efficiency
Through a cooperative project



CLYDE E. FRY, Teacher, Clinton, Illinois

THE cooperative sheep project conducted by the Clinton, Illinois F.F.A. Chapter has proven to be a very valuable teaching device and the results attained have gained wide recognition throughout central Illinois.

It started in the summer of 1946 when a group of seven F.F.A. members became interested in having sheep projects to raise market lambs. With the help of their adviser they purchased a purebred Southdown yearling ram in the Illinois Purebred Sheep Breeders Association sale at Urbana, Illinois. This ram "Eckerts 36" was crossed on native ewes for the production of market lambs.

The results were outstanding and the organization has grown steadily. Last fall five rams were used by the boys. So many boys want sheep projects that we have difficulty in securing enough ewes for them. Several fathers of the boys have increased the number of sheep on their farms.

How the Organization Operates

The organization is named the Clinton F.F.A. Sheep Improvement Association. It has a complete set of officers, a constitution and by-laws. Membership consists of active members of the Clinton F.F.A. chapter who have sheep projects.

Each boy buys a share in the ram or rams for each ewe that he owns. The price of the shares are just enough to cover the cost of the rams. One boy keeps the ram on his farm the year around. All of the ewes are ear tagged and kept on the farm with the ram for about two months during the breeding season. The boy who keeps the ram has the use of ram and the wool that is sheared from him. He receives a fee from the owners of the ewes to cover the cost of pasturage and care of the ewes during the breeding season.

After the breeding season each boy takes his ewes home, cares for them during the winter and raises the lambs the following year on his home farm.

An attempt is made to have the lambs dropped the latter part of January and in February. All of the lambs that are big enough are exhibited and sold in the market lamb show and sale held at the stockyards in Springfield, Illinois, the latter part of June each year. The smaller lambs are carried and exhibited at the vocational agricultural fair and marketed after this show. In a few cases boys have exhibited some of their late lambs at the International Fat Stock Show in Chicago.

Show and Sale Results

From the start the boys have had exceptionally good results in the Springfield show, but in 1950 and 1951 their winnings were even better than usual. Both years they had the champion and reserve champion individual lamb, champion and reserve champion pen of three lambs and the champion county group of ten lambs. In the single lamb class they had nine out of the first 10 placings and 8 out of the first 10 placings in the pen of 3 class. Each of the last two years the champion lamb sold in the auction for $5.00 a pound and weighed 90 pounds. All of the lambs sold for more than they would have brought on the open market.

The boys have not only won a lot of prizes, but they have made good returns. The records show that a number of boys after paying for their ewes, the feed and all other expenses have cleared an amount equal to or greater than what the ewes cost them the first year, or in other words 100 per cent on their investment.

Such winnings and earnings served as an incentive to get boys to be more interested in sheep projects. Through this interest they were led to see that *efficiency of production* was important as well as show winnings. Consequently, the organization set about trying to devise a system of production testing.

Production Testing

The systems of production testing being used by the extension departments in several agricultural colleges were studied and a system was planned both on the individual ewe and flock basis.

In the spring of 1951 individual records were kept on 64 ewes and their lambs belonging to 14 members of the cooperative. Also, flock averages were kept on three flocks belonging to farmers in the community. One large flock was divided and handled as two flocks so as to have separate records on lambs sired by Southdown and Suffolk rams.

In the boy's projects the ewes were identified by numbered metal ear tags. The lambs were identified by a system of ear notches or in small flocks the boys knew which ewes were the mothers of the lambs. Records were kept of the breed of the ewe, the date she yeaned, the number and sex of the lambs, the birth weight, and the sire of the lambs. The lambs were weighed at the age of 90 days. An allowance of a half pound per day was made if they were weighed under or over the 90th day. The weight of the wool from each ewe was multiplied by three and added to the 90 day weight of her lambs to determine the lamb and wool credit per ewe.

In getting the records on the flocks, results were figured as the average per ewe rather than on individual ewes. All lambs in a flock were weighed on the day calculated to be the weighted average 90th day for the flock. To determine this day, the date the first ewe yeaned was designated as day No. 1 and each day thereafter was numbered consecutively. A record was kept of the lambs born each day and the day number was multiplied by the number of lambs born on that day. The products were all totaled and divided by the total number of lambs to determine the average birth date. Ninety days were added to the average birth date to determine the weighing date.

Checking on Results

The highest producing ewe in the boys' projects had a lamb and wool credit of 166 pounds. The upper one-third ranged from 120 to 166 pounds, the middle third

from 90 to 119 pounds and the lowest third from 21 to 69 pounds. In the four flocks tested, the average per ewe ranged from 75 to 89 pounds.

On the basis of one years' testing a plan was decided upon for making awards to boys for proficiency in their sheep projects. The awards will be made at the annual parent and sons banquet. An award will be made to the boy having the ewe with the highest lamb and wool credit. Certificates will be awarded to all boys having ewes that attained certain standards. A gold star will be placed on the certificate for each ewe that produced over 110 pounds of lamb, a silver star for each ewe that produced between 90 and 110 pounds of lamb and a bronze star for each ewe that produced between 70 and 90 pounds of lamb.

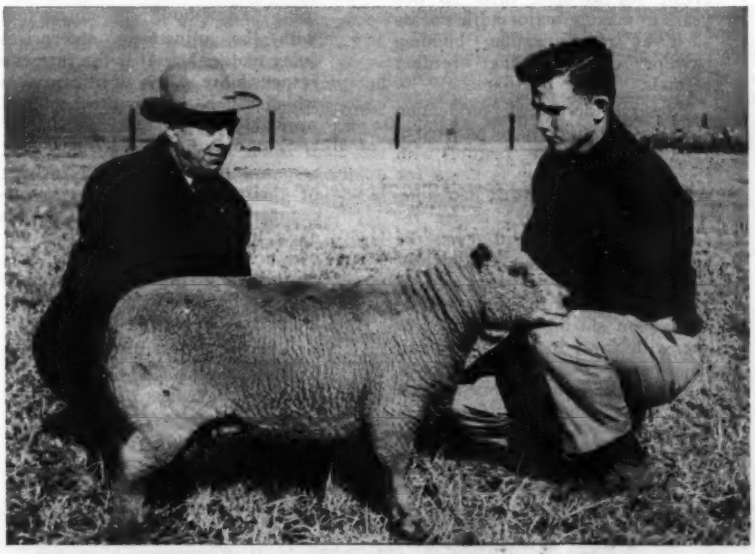
Comparison of Breeds

Since several different breeds of sheep were in the test, there was an opportunity for some interesting comparisons. Southdown, Shropshire, Hampshire, and Western ewes were used and they were mated with Southdown, Hampshire, and Suffolk rams. The lambs from Hampshire ewes or sired by Hampshire rams were the heaviest, but they were not as well finished for show or market. Lambs sired by Southdown rams had much better type and finish. When Southdown rams were crossed with ewes of the larger breeds the lambs were only slightly smaller and they still had the good type and finish of the Southdown. The average 90 day weights of the breeds and crossbreds in the test were as follows:

Hampshire	61.4
Southdown	42.2
Western x Hampshire	62
Western x Suffolk	49.5
Western x Southdown	42
Hampshire x Southdown	54.5
Shropshire x Southdown	51.6

From these results it seemed that for our purposes it was best to use Hampshire or Shropshire ewes and cross them with Southdown rams. From this cross the boys produced lambs of good weight and with sufficient finish to win in the shows and sell well on the market.

Thus the cooperative sheep project has enabled the boys to gain recognition by their show winnings, and to make more profit from their sheep projects. It has led to a system of production testing with an interesting comparison of breeds and crossbreds. It has served as a means of getting boys more interested in learning approved practices in sheep production. It has been a very practical method of teaching the principles of a cooperative organization. ●



Clyde Fry, teacher, and student show first ram owned by the cooperative

Training in horticultural business methods

NATHAN H. CLARK, Teacher, Essex County Agricultural School, Hathorne, Massachusetts

AT the Essex County Agricultural School there is an annual enrollment of approximately two hundred fifty regular students. They come from all parts of the county and are interested in various types of agriculture. After their freshman year they are able to specialize in the field of their choice.

My students receive training in ornamental horticulture. Some desire to be florists, some landscape gardeners, others nurserymen and still others arborists. There are numerous opportunities in all these branches and so it is important that the students receive good training in business methods or management as well as horticulture.

The course is given during the senior year. However, this does not mean that no training is given students during their previous years in the school. Good methods are stressed in major, minor and related subjects throughout the entire four years of schooling. Actually it is an opportunity to review the methods learned in school, recall those learned on summer supervised programs and relate them to approved practices of the trade.

No attempt is made to treat business methods in floriculture separately from those in nurseryculture or any of the other sub-divisions of ornamental horticulture. Because good methods are fundamental and can be applied to all business, important topics are taken up and training given in the application of these to all of the various fields in which the students are interested. In this way students learn from each other, basic principles are stressed and students trained to adapt principles to their business needs. For example, when the topic "Deciding Where To Locate" is taken up, students carrying productive projects are called upon to name the branch of horticulture in which they are engaged, tell where they have located and why. Conclusions are reached as to the factors that should determine whether or not locations are suitable. To follow this up, students are required to study the area in which they would like to start a business, decide upon a location and give their reasons in writing. Florists, nurserymen, landscape gardeners and arborists-in-the-making solve the problem in their own way, learn by doing and put training into practice.

Many Problems Considered

In a similar manner, other topics are taken up in class during the winter months and followed up in connection with supervised programs of work. Of paramount importance are such subjects as those having to do with knowledge of the business, forms of business organization, taxes, licenses and other regulations, the purchase of equipment, layout of the establishment, advertising, buying, pricing and selling. Those giving training in estimating needed capital, obtaining the money, developing a financial reserve and using insurance as a safeguard are also included. Training in the keeping of business records is equally as important and instruction is given in the recording of inventories, work hours, receipts and expenditures. The causes of business failures are known to be lack of knowledge, lack of sufficient capital and lack of adequate records. My course in horticultural business methods is aimed at avoiding these stumbling blocks and assuring success.

Perhaps the impression has been given that most of my students are in business for themselves or plan to be in the near future. This is not so. Many are and will continue to be satisfied to work as trained horticulturists for others on a managerial level. For these, my course is planned to develop more useful employees by providing them with a knowledge and understanding of employer's problems and sound business methods. ●

The indispensable farm tool*

HENRY S. JOHNSON, Director of Information Farm Credit Administration of Columbia, Columbia, South Carolina

THERE are several significant changes taking place in the Southeast which challenge the attention and effort of agriculture teachers; viz.,

1. Rapid industrialization with many workers commuting from farm to factory. (This agri-industrial relationship calls for a reappraisal of the teaching program of most agriculture teachers.)
2. Farms are increasing in size and in dollar value per acre.
3. Mechanical equipment is more necessary to meet labor shortages and increasing competition. (Both 2 and 3 call for much larger capital investments.)
4. Operation costs are steadily increasing. (Production and marketing of crops and livestock call for large amounts of short-term credit.)
5. Many people who have accumulated large amounts of capital from their efforts in industry and trade are now investing some of their savings in agriculture and are thereby competing for and bidding up the price of land and breeding animals.

Recently Cornell University announced the results of two surveys of averages on 14 farms in Dryden Township, Tompkins County, New York, the first survey having been made by Dr. G. F. Warren in 1907, and the last by his son, Dr. Stanley Warren in 1947. In the forty years period: Farms had increased in size from 114 acres to 174 acres; the number of cows kept per farm increased from 12 to 23; average investment in real estate went from $4,614 to $10,486; investment in machinery, stock and other things jumped from $1,832 to $12,022; total capital investment per farm moved up from $6,446 to $22,502; in 1907, farms averaged cash receipts of $1,584, while in 1947 they were $12,470; cash expenses were $562 against an average of $9,086 in 1947, leaving a cash balance of $1,022 in 1907 against $3,384 in 1947; expenses amounted to 35 per cent of the receipts in 1907 but were 73 per cent of receipts forty years later.

Needs for Capital Change

Back in 1907 those farmers could have lost the amount of their expenses for 12 straight years before using up their capital; but on the 1947 basis, they would have had their capital investment wiped out in 2½ years.

The survey shows that it takes almost three times as much capital now to buy stock and tools as it took back there forty years ago to buy the farm itself. And it requires more money invested now in stock and tools than in the farm.

The situation reflected in the survey is practically a true picture of what is happening in the Southeast. Our farms are getting bigger, much more capital is required, more money is made in good times but our farmers can go broke mighty fast when times are bad.

All of this means that a young farmer who does not inherit or marry a farm finds it increasingly difficult to get sufficient capital to establish himself in farming. However, his opportunities for employment on large or specialized farms or in industry have improved considerably.

Here in the Southeast, we are interested in grassland farming—row crops, plus grain, grass, and livestock, with extra acres planted to suitable trees. Our problem is a shift in enterprises and there are some interesting figures to show what it's going to take in the way of money to make these adjustments—$40-$70 per acre to build pastures, not to mention the expense of clearing, ditching, fencing, and stocking with cattle. Most farmers are interested in making some adjustments. Research has pointed the way and some farmers have already demonstrated the practicability of and profit resulting from adjustments. Capital or credit is the main thing now lacking. This dramatizes the fact that credit is the one indispensable tool of business and agriculture.

Meeting Credit Needs

Why is it difficult for some farmers to get credit to finance adjustments?

The lender is charged with the responsibility of getting maximum security; the borrower wants opportunity and protection against incalculable evils. The desirable course is for the lender and borrower to cooperate in measuring the amount of credit required, and fixing the terms to suit the borrower's need.

Credit to be used in making farm adjustments should follow a certain pattern to be most useful.

1. The lender will need the use of credit for at least three to five years in making major adjustments such as mechanization, building pastures or purchasing breeding animals.

   To serve these needs production credit associations have adopted a 12-month renewable feature with such loans. The note is made for a 12-month period and at that time, the borrower and the lender review the operations and revise the amount of the loan in keeping with the borrower's needs and in line with good farm management.
2. Repayment should be amortized in line with farm income, increasing as income increases. The borrower should make some payment each year from enterprises (cotton, tobacco, etc.) not affected by the adjustment.

Mutual Responsibilities

1. The lender should know enough about agriculture and keep informed on changing agricultural conditions so as to be able to advise with farmers on the type of adjustments which should be made, and the type and size of loans needed.
2. The borrower must earn his loan. Credit is not an inherited right, therefore the borrower must establish his own basis for credit. He must have a good reputation and be able to sell himself and his plans to the lender. He must be willing to adequately secure loans for adjustments which are to be made over a period of time.
3. Application for adjustment loans should include the borrower's definite plan for operating his farm, the goals of the farm family, an inventory of resources, a step by step procedure for making the desired adjustments, the size of the loan required, and a very definite and realistic repayment plan.
4. Adjustments should be in line with the undeveloped resources of the farm, and the managerial ability of the borrower including his capacity to grow with the enterprise. He should concentrate his loans with a dependable creditor, keep him informed of progress and problems, and be willing to consider his suggestions and advice.

The Teacher

In this period of changing agriculture, the vocational agriculture teacher has opportunities and responsibilities.

1. It is his opportunity to provide sufficient information about credit agencies and procedure so that adult farmers, and Future Farmers, can make intelligent choices. The teacher should remain a teacher of credit and never allow himself to be used as a propagandist. Likewise, he should never allow himself to be deprived of his right as a teacher to present facts to his students.
2. It is the teacher's opportunity to provide new information and technical "know-how" in connection with the adjustment enterprises being undertaken. It is the farmer's responsibility to use all information which can be put to practical and profitable use on his farm.
3. It is the teacher's opportunity and responsibility to teach the principles of thrift and good business procedure by practicing them in his daily life and using them in his own private business ventures. It is the teacher's responsibility to keep his own finances in good order. To do this he must—
   a. Live within his income.
   b. Save some small part of his income, regardless of how limited that income may be.
   c. Invest his savings wisely.
   d. Use credit when he can make it earn a profit; and
   e. Meet his financial obligations like a good business man and gentleman is expected to do.

*Talk presented at North Carolina Agriculture Teachers Conference, 1951.

Agricultural economics for the vo-ag teacher

C. A. BRATTON, Associate Professor of Farm Management, Cornell University

AS AN agricultural teacher the demands on your time and efforts are tremendous. Because of your position in the community, you are confronted with all kinds of problems. You are called upon to know the latest varieties of crops, the best families of livestock, the latest fertilizer recommendations, how to control insects and diseases, how to repair and adjust machinery, as well as how to teach students. On top of all this come demands in the more general fields of farm management, marketing, and agricultural policy.

In working with the teachers in New York State as an Economist, I have been impressed by this multitude of demands. In this article, I wish to share with you some ideas as to how Agricultural Economics can serve "The Busiest of Men—the Vocational Agriculture Teachers."

Where Economics Comes In

Agricultural Economics can serve you as a teacher in two general ways. First, it can provide you with subject-matter information which will be useful in your teaching. Second, and probably even more important, training in Agricultural Economics can give you a background for understanding and analyzing world, national, and local affairs.

The first and most obvious area in which you as a teacher are concerned with economics is that of general farm management and marketing. Here there is need for knowledge of farm management principles, keeping records and accounts, the functioning of farmer cooperatives, and the general nature of marketing. This calls for facts and information from the agricultural economists which you can use in your classroom teaching.

A second and less obvious area is that of general training in economics which will help you in analyzing public problems. In your position as a teacher, you influence the thinking of your community on current questions. Many of these questions have economic implications. In order to evaluate these situations wisely, it is important that you understand basic economic principles. This is where a well-planned course of study in Agricultural Economics can serve you.

High school students, young farmers, and members of the community are concerned with current issues. They are looking for information on questions dealing with support prices, foreign trade, taxes on cooperatives, social security, and many other things. As a teacher you can help these people if you have some facts and an understanding of the economic implications of the programs. The thinking which you do along this line will be reflected in the thinking and action of the farm people in your district. Consequently, it is important that the Agricultural Economics department in your state provide training and information which will help you meet this situation.

How To Get It

Where and how are teachers going to get the facts and training needed in the field of economics? I would suggest that the undergraduate training program should provide some of this. But even more important is the information provided you after you are on the job. This may be in the form of graduate courses, in-service refresher training, and regular channels whereby printed information reaches you.

Undergraduate Training

Typically, the curriculum of students majoring in agricultural education is crowded. We might logically ask "What is the minimum of courses needed in Agricultural Economics?" As an Economist, the author is probably biased. However, it would seem that two courses would be the irreducible minimum. Four courses would be desirable for adequate preparation.

What should these courses be? A good general course is essential. Preferably, this course should concentrate on basic economic principles with applications to agriculture. Contrary to common practice, the best professor in the department should give this course. Proper grounding in the introductory course will make subsequent economic work easier and more likeable. Practical farm management would be the second "must" course. This course provides the teacher with basic information for teaching high school boys and young farmers.

To give adequate background in economics, two other courses are suggested. The first would be a general course in marketing, which would include a treatment of prices. The second would be a course in agricultural policy. Problems in agricultural policy are becoming more important each year. Formal course work in this area can be most valuable to a teacher. It provides him with an approach to the many agricultural problems which come up from time to time. If this course is omitted from the undergraduate program, it should be "number one" in post graduate work.

Graduate Training

Teachers with experience commonly seek further work in Agricultural Economics. Advanced courses in farm management, prices, marketing, or policy are all desirable. These courses can be made available with special application to the problems of the vo-ag teacher. Summer school offerings usually can meet this need. Off-campus or extension courses are meeting the needs of teachers and other agricultural workers in some states.

In-Service Training

Economics is a changing field (as is true with many others). To keep abreast of the times refreshers are necessary. This can come as a part of an in-service training program in Agricultural Economics. The county agricultural agents in most states are given a two or three-day school yearly or every other year to bring them up-to-date on economics. We might take a lesson from them. Similar schools could be equally valuable for teachers of agriculture.

Monthly professional meetings of teachers are commonplace. Here is another opportunity for a crack at economics. In New York State, extension economists and local qualified persons are frequently invited in for such meetings. Again, this helps the teacher to keep up-to-date and to further his development in understanding economics.

Alert teachers make good use of opportunities afforded through general meetings in their area. Frequently, agricultural policy questions or new developments in farm management are discussed at community meetings. This is just one more place to add to your store of economic facts.

Channels for Printed Information

New economic facts become available daily. No one person can keep informed on all these new facts. Consequently, it is suggested that teachers select one or two reliable sources of printed information to aid them in keeping informed. Some state colleges issue regular economic publications for all professional workers in the state. In other places, special releases are prepared for vo-ag teachers. If your state doesn't have such a publication, the author would suggest that you approach the state college of agriculture and request that such a publication be made available. Current economic facts are essential if you are to provide the students and farmers in your community with the economic information they are seeking.

Summary

Vocational agriculture teachers hold a key spot in regard to farm thinking. Pertinent economic facts and an understanding of economic principles are basic to sound thinking and action by farm groups. If you as teachers are to fill this key spot, you need to be well grounded in economic training and you need smooth-functioning channels for bringing you timely economic information. If you are short on these two basic things, why not set out to correct them? Make Agricultural Economics serve you and your community. ●

Books are more important today than ever before. The most urgent need for our times is for more information, given to more people. For the great decisions which are being forced upon us all, world decisions which will affect millions of people as well as ourselves, must be made not by any little group of men in any capital but by the peoples of the democratic countries, and especially by the people of the United States.

—Pearl S. Buck

Farm management teaching

Let's make it practical

DUANE M. NIELSEN, Teacher
Auburn, Nebraska

WE WOULD BE severely pruning the many-branched limb of educational methods if we were to propose that any one method of teaching farm management to students of vocational agriculture was all superior and completely effective. However, we can muster considerable support in concluding that of the two basic problems in education, how we teach far supersedes what we teach. Consequently, we must choose wisely the tools with which we assist our students in the cultivation of their fertile mental fields. Recognizing that it may possess many fallacies, a method of guiding students to farm management decisions which results in application of the understandings and abilities necessary to establishment and proficiency in farming is being presented.

A student-centered approach to the farm management study develops that beginning spark which is the nucleus of lasting interest through the course. A few hours spent in student expression of the farm management needs in their situations and in their communities, as they see them, leads to a realization that the course is their own, dedicated to solving their problems and meeting their needs. The meeting of each need, in reality, becomes an objective of the course. These needs can perhaps most efficaciously be summarized, and established as the objectives of the course, as illustrated in the diagram.

What students need in Farm Management "Learning."

Use Case Farm

We are aware that real life problems present a challenge to the students that is nonexistent in synthetic situations. Consequently, an actual case farm provides a more effective means of developing a method of solving management problems than does a series of unrelated, unreal, situations. This case farm may be one of several possibilities. It could well be the department farm owned by the school, the farm of a cooperative young farmer or adult farmer in the out-of-school education program, the farm of any interested farmer in the community, or it could even be the home farm of one of the students. The latter suggestion, the home farm of one of the students, has one major disadvantage, for after the class has aided in the solving of a problem on the case farm each individual member then turns to his own situation and solves the comparable problem existing there. Since the class will have already solved that problem for the student who has the case farm, a gap in his class activity will result. It is not intended to suggest that the solving of the problem on the case farm leads to all individual work and ends class unit work. Quite to the contrary, as each individual follows the pattern of problem solving established when working with the problem on the case farm, he will need the assistance of his classmates. This will lead to committee work, entire class discussions, and various methods of groups dynamics before the end product of a solution in each individual situation is reached.

There has been frequent reference to "each individual situation." In a class of day students, or a young farmer group, these individual situations commonly vary from establishing a revised farm plan for a farm on which the student is receiving farm experience, through planning the management of the home farm on a partnership arrangement, to actually developing a plan of operation for a farm the student is operating or will be operating in the near future.

Invoicing and appraising resources is a first problem in teaching program.

Steps in the Pattern

1. Assist the students to cooperatively develop their own objectives, as to what they wish to receive from the farm management course, and to arrange the farm management areas, which those objectives will suggest, into the order in which they wish to study them.
2. Secure a case farm, and tactfully inform the operator of its use so that the information may be secured which is necessary to understanding the situations and solving the problems.
3. Through field trips and discussions with the case farm operator, secure a sound understanding of the situation

(Continued on Page 135)

Short courses are not enough . . . .

L. B. FIDLER, Special Supervisor, Ohio

IF A HEN and a half lays an egg and a half in a day and a half, how many eggs will two hens lay in a day? You ask; what does that have to do with adult education in agriculture? Most of us would grant that it isn't a very practical problem and furthermore, that a proper solution of it would be of little value. What we want to know is, what will one specific hen do over a year; good weather and bad and how long will she keep it up.

But getting back to adult education in vocational agriculture, let's paraphrase our hen and egg problem a bit; if a vocational agriculture teacher teaches a short course (ten or twelve sessions) this year and another one maybe along another line next year, how long will it take his farmer students to advance in the establishment, organization and management of their farms, to the stage of successful farmers, or putting it another way how much does such a hit and miss program help them?

Trend Away From Short Courses of Early Days

Adult education in vocational agriculture seems to be slowly evolving from a rather ineffective intermittent stage towards a planned continuing program of instruction. It would be interesting to know just what forces are promoting this trend towards a planned long-time program of instruction and also what, if anything, is retarding it. The writer recalls a conference on adult farmer courses conducted twenty-six years ago. Apparently, up to that time, in Ohio at least, adult and young farmer classes had dealt almost exclusively with mechanical courses.

At this particular conference a question was raised by a beginning teacher as to the advisability of organizing a managerial course. The answer given was that a first year teacher might be naive enough to attempt such a thing, but experienced teachers would know better. Quite evidently mechanical courses do not lend themselves to long-time planning and continuing instruction as do managerial courses; particularly those relating to the organization, operation and replanning of a specific farm business. Is it possible that the traditional mechanical short course in farm mechanics has dominated our thinking and planning for adult work to the extent that many teachers appear to think that short-courses are satisfactorily meeting the needs of adult farmers.

In the early forties vocational agriculture assumed responsibility for War Production Training. It was the writer's privilege to serve as special supervisor for that program involving C.C.C., N.Y.A. and O.S.Y.A. courses. This program by its very nature was a "quickie." It was designed to meet urgent, specific situations; it was operating during an abnormal period of urgency when long-time planning was almost impossible. In accordance with the objectives and the conditions under which it operated the courses were definitely limited as to time and usually very narrow in scope. It seems reasonable to believe that this program has been another factor which has caused us to plan our adult education in agriculture on a "short-course" basis.

Limited Benefits From Earlier Programs

Those of us who have conducted short-courses for adult farmers over a period of years certainly will not deny the fact that many specific improvements result from such instruction. Reminiscing over a period of twelve years of service (1925-1937) as a local teacher, during which period seventeen young

L. B. Fidler

farmer and adult farmer courses were conducted, brings to the writer's mind many improvements on the farms of his students; improved crop varieties were secured, purebred sires were purchased, fields were limed, etc., but is this enough; have we as vocational agriculture teachers served as effectively as we should with this type of program? In order to intelligently consider this question let us move up in our thinking to the present time.

During the past five or more years we have been privileged to try a new plan of adult education in agriculture. Many of us can recall our rather sensational reactions to the early proposals by: Spanton, Pearson, McCormick, and others, of a four-year program for veterans. It was such a far call from ten-week short courses; the idea seemed almost incredible, but now national and state studies reveal clearly that a high percentage of veterans who have been enrolled for four years of training want still more.

An impartial sampling of 64 cases in Ohio shows 72 per cent desiring more training, 22 per cent uncertain and 6 per cent definitely stating that they do not desire further training. Apparently adult farmers will welcome a type of program which goes beyond the usual short course class type of instruction, dealing in many cases with isolated subjects.

The question might be raised as to the popularity of the longer planned program. Referring again to the Ohio study the popularity of the individual and small group on-farm instruction was indicated by the fact that approximately 90 per cent of 77 answering a question relating to the value of on-farm instruction, rated it as of much or some value, while approximately 10 per cent rated it as of little or no value.

New Features Extend Instruction to the Farm

Evidently the individual and small group on farm instruction is one of the main features which appeal to adult farmers. Such a program of on-farm follow-up by the teacher presumes that there is something to follow; this certainly points to the necessity for long-time individual planning based upon an intimate knowledge of the farm and the farmers' problems. If such knowledge is to be secured by the teacher it seems evident that thorough farm surveys must be made as a basis for a long-time individual farm plan. In fact these two tools, upon which so much stress has been placed in the Institutional On-Farm program, become the actual foundation for long-time programs.

Under this type of instruction emphasis moves largely from the classroom to the farm and from the group to the individual. The student's thinking, study and planning expands beyond isolated enterprises and skills to the total overall job of becoming satisfactorily and successfully established on his farm. Any problem falling within that broad objective is a challenge to the teacher and student alike; and with proper teaching skill, can be made a joint challenge to the entire class.

A Big Job Ahead

Certainly no reader will question the fact that such an approach to adult education for farmers is a big job; a job which may, and probably will, require new plans and new programs. The start may have to be made back in teacher training. Some may say it can't be done; others may lack the courage to try it, some few will launch out, determined to profit by our experiences and the facts coming to light in our state, regional and national studies. It would seem that we are at a critical stage in our evolution towards real effective education for farmers; short courses are not enough, let's take the next step by planning and conducting educational programs which will really help "those engaged in the occupation of farming." ●

Contrary opinions flail the chaff out of ideas.

Adult farmer education

H. W. SANDERS, Teacher Education, Virginia Polytechnic Institute

H. W. Sanders

ADULT farmer education is entering a new phase. Some of the states are out front leading the advance, some are trying hard to keep step, and a few are lagging behind. Authority for this statement is found in the survey of studies of adult, young farmer, and part-time farmer programs throughout the nation in the past thirty years, the *Digest of Annual Reports of State Boards of Vocational Education* of the Office of Education, and personal letters from some eighteen representative leaders in as many states.

Who are the adult farmers? For the purpose of this report adult farmers are all post-high school enrollees in organized classes taught or supervised by teachers of vocational agriculture. However, attention is directed primarily to evening class instruction since most of the studies deal with procedures, methods, and results pertaining to instruction in this type of class.

Statistical Evidences of Growth

Evening classes were first organized in 1921. Enrollment on the national level increased gradually for ten years with a slight decrease in 1932 and in 1933, and again in 1936. From 1937 to 1947 the enrollment increased from 120,000 to 263,118. There may be significance in the fact that the 1950 enrollment of 345,007 was approximately 55,000 more than the 1949 enrollment of 290,275, an increase far in excess of that of any previous year. Research studies and opinions of leaders in agricultural education seem to indicate that this is not a mushroom growth but is a logical development as a result of (1) the rapid development and improvement of agricultural practices necessitating further study on the part of farmers, (2) the expansion of the program of vocational education in agriculture, (3) increased emphasis on the preparation of teachers for adult class instruction, and (4) the growing popularity of adult education in non-vocational as well as vocational fields. Moreover, it is the opinion of some that a strong evening class program is a logical sequence of a strong part-time or young farmer program.

Some Results of Adult Instruction

Many years ago this writer made the statement that if the teacher of agriculture could induce every boy enrolled in his all-day classes to adopt, and consistently follow, two improved practices in each of the enterprises carried in his supervised farming program the agricultural practices of the community would be revolutionized in ten years. At that time, this seemed to be a reasonable, if not a conservative, statement. By comparison with the results secured by teachers of evening classes, as reported in several studies, the number of improved practices followed by farmers enrolled averaged slightly less than three during any one year. What does it take to induce a farmer to adopt improved practices? Evidently the task is by no means an easy one. According to two studies farmers improve practices already being followed more readily than they adopt entirely new practices. There is some evidence that adult classes are more successful in old established departments than in new ones, other things being approximately equal. It may be merely a coincidence but the number of visits to farms of evening class members was practically the same, in one instance, as the number of improved practices adopted. There may be a hint here that we need some studies to show more conclusively what factors are most important in influencing farmers to adopt new and improved practices.

The number of improved practices adopted has been emphasized because it is one of the most tangible and objective measures of results of instruction. Research workers, however, seemed to place more emphasis on securing interest and maintaining attendance than on this measure of tangible results, perhaps on the assumption that regular attendance and a high degree of interest would help to insure the attainment of the more important objective.

Evening classes that are planned on a three or four year basis and are operated continuously seem to be more productive of results than those that are conducted for shorter periods of time. The elements of time and continuous effort seem worthy of serious consideration.

Numerous studies have been made of evening classes on food preservation. Tangible results that make attractive reports were cited in most of them but nearly always there was the direct or implied indication that the service feature of such classes was allowed to minimize the truly educational part of the instruction.

Organizing Classes

The agricultural advisory committee has been generally recognized as a valuable source of help to the teacher in organizing and conducting adult farmer classes. Courses must be organized on the basis of the needs of the members of the classes taught and surveys of local farms, made in a systematic way, constitute one of the best means of insuring the teaching of functional material. Advisory committee members are especially helpful in securing and interpreting survey data.

The personality and aggressiveness of the teacher of agriculture seems to be the most important factor in securing adult farmer interest and attendance. These qualities will, in turn, affect the extent to which some of the practices followed will produce desired results. With varying degrees of success, the following practices have been followed to secure enrollment.

1. Secure assistance of boys in all-day classes
2. Secure assistance of local agencies that are most interested in the program, such as Extension Service, Soil Conservation Service, and the like
3. Write letters or postal cards
4. Telephone prospective members
5. Avoid the "come one, come all" type of invitation. A relatively small class of carefully selected, interested farmers is preferable to a large class of less carefully selected individuals.

A suggestion that farmers be charged a fee to enroll in adult classes may not be acceptable to many teachers but deserves consideration and, possibly, further study. There are some individuals who still like to pay for what they get and in communities where this attitude prevails and school funds are limited the idea may have merit. At any rate, early and definite enrollment and complete and early planning by the teacher are conducive to good results.

Farmers who have a part in planning the content of the evening class are more likely to enroll and to maintain good attendance records. The choice of content of courses will naturally vary but the popular practice of extending classes throughout the year provides a perfect opportunity for following seasonal sequence in teaching and permits the attack of pressing problems at the time it is most needed.

Methods of Instruction

The teacher of agriculture, or someone fully qualified, should be responsible for the instruction of adult farmer classes. Too great a dependence on outside help has not seemed to be desirable. One study indicated that enrollment,

What do studies show?

This contribution is one in a series of twelve planned for the current volume. Each will review and interpret studies in a phase of the program in agricultural education. Each will provide the reader with an overview of the research and point up applications in a particular phase. The phases to be covered and the selection of possible contributors were planned with the A.V.A. Research Committee for Agriculture.

attendance, and persistence of attendance increased as the number of outside speakers increased but the number of improved practices carried out decreased. Fully trained and experienced teachers of agriculture should be depended upon to carry the responsibility of developing the adult farmer education program. We can not expect to do the job with partly trained emergency teachers.

The nature of the class is an important factor influencing methods of instruction best suited to a particular group. The conference procedure seems well adapted to groups with a good academic background while telling and discussion seems better suited to those with less "schooling."

Careful planning, thorough preparation, and the usual procedures commonly followed by teachers in all-day classes should be characteristic of all adult farmer instruction. Farmers are primarily interested in practices that will increase their incomes; consequently class time should be devoted to the solutions of seasonal problems of a practical nature. General principles, interpretive science, and related information should be given secondary consideration and then only to the extent justified by the interests and capabilities of the class members. Some of the best teaching is done on the farm; hence, provision should be made for a sufficient number of visits and visits should be planned to use the time of the teacher and the farmer effectively. The operation, care, and maintenance of farm machinery as well as other phases of farm mechanics are more important now than they have ever been before as instructional subjects. Teachers must be prepared to handle problems in this area. There is still room for the improvement of many instructors in the fundamental technique of teaching by means of demonstrations. The alert teacher will be quick to adjust his methods to the needs and interests of the group. There is no room for a "take it or leave it" attitude for it is too easy for the adult class member to "leave it," that is, stop coming to class.

A Look Ahead

As we enter this advanced stage of adult education for farmers—a stage which is upon us whether we recognize it or not—it may help to summarize some of the ideas that seem to be crystallizing. These are some of them:

1. Adult education for farmers should be recognized as a part of the total program of adult education. It would be short-sighted to assume that farmers are interested only in the solution of farm problems. Some groups may be more interested, for example, in a study of social, economic, and political problems than in agricultural problems. The high school has been called "the peoples' college." It is the one institution best suited to meeting the educational needs of adults as well as adolescents. In some situations, at least, adult farmer classes should constitute a part of the overall community program of adult education and the teacher of agriculture has the responsibility of seeing that they are properly coordinated. At least one study carries the statement that adult farmer classes are most successful where other offerings are available as well.

2. Adult farmer education must be recognized by teachers and administrators alike for what it is—an important and integral part of the secondary school program. Time must be allowed the teacher to do the job as it should be done. The situation can not be met by tacking on the adult program as though it were an afterthought. Some states are already allowing from two hours to a half-day of the teachers' time for adult class instruction, or employing special teachers to devote their full time to the program. Teachers who are "spreading out too thin" should drop some of their unessential or non-functioning activities in order to find time for this most important activity.

3. Teacher training institutions and supervisors, recognizing the need for training teachers more thoroughly in adult farmer class techniques are taking steps to strengthen pre-service and in-service training programs. It is a common practice to assign student teachers only to schools in which part-time and evening school classes are being conducted. Summer conferences, summer school courses, and small group conferences are being used as media for providing for the up-grading of teachers in service.

4. Visitation of the adult class member on the farm by the teacher has no satisfactory substitute. We have had our belief in this statement confirmed by the institutional-on-farm training program. We can not justify a failure to profit by this evidence.

5. The many excellent studies that have been made in the area of adult farmer education may well be supplemented with coordinated national studies dealing with such phases of the program as (1) criteria for evaluating successful adult farmer classes, (2) factors influencing the adoption and continuous use of improved farming practices by members of evening classes, and (3) methods best suited to adult class instruction. ●

Farm management teaching

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which exists with relation to each management problem.

4. Secure a clean cut statement of the first problem to be solved on the case farm, then, using progressive methods, solve it.

5. Assist each student to follow the same pattern in securing the necessary information and solving the comparable problem in his situation, thus transferring the learning from the case farm situation to his own.

6. Repeat the process with each problem in each farm management area, as the students previously arranged.

7. Follow up the solutions and give the assistance necessary to the implementation of these new management plans on the farms.

Previously it was illustrated how the students' objectives might be secured and arranged and later suggested that the farm management areas which these objectives would suggest should be arranged by the class in the order in which they wish to study them. After consulting references and discussing their objectives, students arranged the areas as follows:

1. Cooperatively Planning the Farm Management Course.
2. Invoicing and Appraising Resources —classifying the Land.
3. Selecting the Type of Farming.
4. Planning the Cropping System.
5. Planning the Livestock System.
6. Planning Equipment and Power for the Farm.
7. Planning the Most Efficient Use of Labor for the Farm.
8. Determining the Probable Receipts and Expenses on the Farm.
9. Determining the Farm Family Living Costs.
10. Determining a Method of Increasing the Farm Income.
11. Planning a Yearly Program of Improvement.
12. Planning for Adjusting the Farm Business to Changing Economic Conditions.
13. Determining a Satisfactory Farming Arrangement.
14. Determining Credit Sources and Uses.
15. Planning an Insurance Program.
16. Understanding Farm Law, Taxes, Deeds, Titles and Mortgages.

To illustrate how an area would break down into problems, let us look at "Planning the Cropping System." The first problem recognized in this area was stated by the class, "Is the present cropping system on the case farm satisfactory?" After this problem was solved, and each student had solved the comparable problem in his situation, the second problem recognized was, "What cropping system should be followed on the case farm?" In solving this problem on the case farm, the class divided into committees. Each committee proposed a crop rotation and a field layout plan as a possibility for the case farm. The entire class then determined the factors which should be used in selecting the possibility best suited to the case farm. In all, sixteen factors were used in determining the committee recommendation which was to be selected as the class conclusion. Quantities of feed produced, annual value of crops produced, annual cost of producing the crops, distribution of labor, and risk involved were some of the factors used. It can be readily seen that a possibilities-factors chart was used in solving this problem, one variation of the problem-solving procedure.

Not alone in teaching farm management, but in any situation where we find ourselves working with our most prized possession, the youth of our country, we need to awaken to the realization that we are facing young men who are tired of the logical, cut and dried school drudgery to which they have been so long exposed. The majority of the details and facts, the extremely specific skills that we may teach, will be obsolete within a few years, but the general abilities and attitudes that we can develop through the use of a practical, psychological method of teaching will always be valuable. ●

Veterans take over

R. R. DENSON, JR., Area Supervisor, I.O.F. Training Program, Florida

"THAT'S one of them book farmers, son. Never seen one of them make a go of it yet—no siree, you can't learn to farm out of a book." A statement similar to this was made by an old timer, a "dirt farmer," in the early nineteen thirties. It sounds like a joke now, but in those days it was too often a true statement. It referred to men who graduated from agriculture schools and colleges, who never quite seemed to be able to combine the technical and the practical and come out with workable answers that paid off on the farm.

Today, the good farmer and his books are inseparable. In fact, the "book farmer" of today seems to have solved the problem of taking technical information from any source, and making parts of it fit his everyday needs.

There are many agencies responsible for this almost unbelievable progress. We salute all the agricultural and civic agencies who have devoted so much time and effort to encourage and assist our farmers.

The Institutional On-Farm Training Program has contributed to the younger farmers in the past few years. The heart of the instruction that a trainee receives in this program is improved practices and skills in producing, managing, and marketing his crops and livestock. Here there is no gap between the theoretical and the practical. The teachings must be workable because many of the things taught are soon afterwards put into practice on the trainees' farms. They must pay off; they do pay off. The Florida veterans have taken the lead in many communities in the profitable production of crops and livestock. Now the "old timers" are looking over the fence with open eyes and asking questions. Being a good farmer includes being a good citizen. Our training courses are set up to include instruction and experience in leadership activities. Our trainees are taught civic problems, organizations, and problems in everyday living.

A recent survey was made of a cross section of Florida classes. Some of the facts brought out by a summary of this survey are as follows:

The average grade completed by our trainees in high school is the ninth. About one out of every three trainees has had at least one year of high school vocational agriculture. About one out of every 10 trainees has received at least one year of college. This gives an idea of the grade level with which we are working.

An average of a bit more than one trainee out of every two classes (40 men) is an officer in the Florida Farm Bureau.

Over half of our class members are members of a veterans organization, and about one out of every twelve is an officer in the organization.

An average of one trainee out of every six over the state is a member of a local civic organization, or about two out of each class, which is exceptional for farmers. An average of over one trainee per class is an officer in a local civic club.

Our men are active in church work and charity drives. About one out of every eight trainees holds a responsible church office.

One out of every five trainees takes active part in local charity drives and projects for community betterment.

The majority of the men receive both agricultural and non-agricultural magazines regularly. Most of them have home libraries started with at least ten books, about half of which are agricultural books.

Over fifty per cent of the trainees have accumulated twenty-five or more good farm bulletins for reference.

About one out of every six trainees takes an active part in the local P.T.A. and school.

Two-thirds of our men carry at least $1,000 life insurance and about one-third carry health insurance.

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Farm and home plan

FRED H. CORNABY, Supervisor, Richfield, Utah

AFTER the first year's operation of the Institutional On-Farm Training Program in Utah, which began in 1946, it was very evident that a long-time farming plan needed to be worked out for each enrolled trainee. The purpose of this plan was first to give guidance to the trainee himself by setting up definite planned objectives to be reached; not only during his period of educational entitlement, but until the objectives are actually reached, be it three or ten years of actual farming. The second purpose of the plan was to inform the instructor as to just what each trainee's actual farming objectives were and to render as much assistance toward the accomplishment of these objectives as possible.

After using the trial and error method of experimentation in the field with various plans for a year, a satisfactory plan was agreed upon by the staff. This plan has now been in operation for more than two years. The first two pages of the fifteen-page farm management plan call for a hand drawing to scale, or an aerial photograph of the farming acreage. On the field map each field is numbered, and roadways, fence lines and irrigation ditches are indicated.

The next page of the plan calls for a drawing to scale of the present farmyard arrangement, and below this is a drawing with the proposed changes or new building plans included. The thought here is that farmstead development plans can best be planned and changed on paper before construction actually begins. Also; good farmstead planning reduces chore labor, saves valuable farming time, decreases fire hazards and makes the farm a safer place in which to live and work.

The next portion of the book analyzes each field of the farm as to needs for leveling, drainage, fencing, noxious weed infestation, etc., and likewise provides for a crop rotation plan for any number of years. A farm machinery and equipment analysis follows the field analysis with provisions for listing needed repairs and replacement plans.

Page 7 analyzes each farm building as to usage made of it, need for paint and repairs, fire protection requirements and a listing of any new building plans. Likewise, on the bottom of page 7 the needs for farm credit are listed. Page 8 attempts to balance up the farm's livestock with the annual feed output. Page 9 evaluates the size of the farming program on a productive man work unit basis. It also allows for enterprise expansion and the proposed year for accomplishment.

Page 10 calls for a listing of the improved practices already adopted on the farm. The following page lists the improved practices to be adopted as located to increase farming efficiency. The final page to be completed calls for a listing of farm improvements to be made. Pages 14 and 15 are aids in completion of the plan.

The farm and home plan in Utah is worked out on the farm of each veteran trainee by mutual agreement between instructor and trainee. As soon as the job is complete the farm management plan is kept by the veteran trainee in company with his farm record book, and only referred to by the instructor as the need arises. Experience has proved that the more time and energy the veteran spends in the plan's completion, the more he will make use of it in his long-time farming operation.

Not only is the farm and home plan used in the I.O.F. training program. Instructors of vocational agriculture are using it with the young farmers. With both programs it is encouraging sound planning on the farm before action. It serves as a sound directive for the farmer to follow. It also establishes a goal for the farmer to achieve.

The information gathered in the farm and home plan provides the instructor with an invaluable source of classroom material for teaching by the problem-solving method. If the instructor uses this material in his instructional program he will be rendering assistance to those facing the problem and at the same time dealing with problems that are common within the area. Could there be a more practical farm management training program than for a young farmer to plan a balanced farming unit large enough to offer full employment and efficient enough to assure a fair return between cost of production and prices received?

Tips for teachers

G. H. SALISBURY, Teacher
Sidney, New York

G. H. Salisbury

Winning Floats

MOST of the usual money raising devices at our school are reserved for the junior and senior classes. The Future Farmers have been lucky in picking up ten dollars towards our needs through the annual "Night of Fun" or Halloween parade.

Competition usually is very keen especially since the numerous members of the Varsity Club and the scantily clad cheerleaders also are out for the coveted sawbuck which is the prize for the best parade feature. The prestige of winning is really important. Some organizations spend more than the prize is worth in order to "cop" it.

Last year the F.F.A. easily took first. In fact when the Varsity Club saw our entry it withdrew. We had a Tractor Cavalcade.

Our town is industrial. Few farms other than the subsistence type are adjacent to town. Therefore, when the idea of a Tractor Cavalcade was first brought up it met with strong opposition and ridicule. More and more boys soon saw the light as tractor owner after tractor owner agreed to loan his machine for the parade. Before time for the parade more than enough tractors were assembled at the agriculture room for the event.

To each radiator was affixed with baling wire an empty cardboard carton. Each carton had been painted previously with blue tempera water color. The opened end of the carton faced the radiator. The top, the two sides and the front of each carton bore in yellow one of the letters found in "Future Farmers of Sidney, N. Y." We had extra tractors carrying F.F.A. banners and American flags.

Fun and learning combined in practicing for the "Tractor Cavalcade."

In single file with headlights gleaming the tractors at the end of the parade rounded the hotel corner into Main Street and won the hearts of the populace and the much prized first award.

The boys love it. Some tractors have been spoken for a whole year ahead. Each Greenhand and Young Farmer hopes to be at the wheel of a tractor at our next Cavalcade.

Four years ago our Advanced Agriculture boys spent a great deal of after-school time bedecking a float. They used yards of material and intricately covered their conveyance. On the other hand, two or three sophomores had an idea and made it work. In a fraction of the time it took their older brothers they erected a two-by-four at front and rear of a farm trailer. Between these they strung poultry wire and through the wire wove the outline of a setting hen using light crepe paper. Appropriate posters bore brief slogans.

The result—the elaborate offering of the older boys took second place to originality and the float that carried a message more simply.

Pipette Guard

Not having had occasion to purchase glassware for some time, I was quite appalled at the prices charged. Here is a money saving tip I advance in the interest of agricultural science and your pocketbook.

Cut off five or six inches of fine copper wire. Make a bight around the upper tube of a pipette leaving an inch or two of wire beyond the bight. Twist tightly the smaller end of wire as far as it will go around the pipette. Do likewise with the other end of the wire but at the other side of the enlarged section of the pipette. For a real neat job have both ends finish toward the enlarged portion of the pipette.

The purpose of the wire guard is to prevent the instrument from rolling off a table and breaking. ●

W. B. Ruth, teacher of farm veterans demonstrates soil testing.

Veterans take over

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Ninety per cent of the men have their own transportation, either a car or truck or both.

Two-thirds of the trainees own farm tractors. Over two-thirds of our classes are organized with a set of officers and one-half of the classes hold regular monthly business meetings for leadership training.

The average class in Florida holds some type of social activity five times per year. This is usually a fish-fry, chicken-fry, or picnic.

About one class out of every ten has some kind of athletic team organized.

Florida trainees of the Institutional On-Farm Training Program, under the leadership of their teachers and with the aid of other agricultural agencies and civic clubs, are "taking over" the lead in producing and marketing crops and livestock efficiently. They are taking their places in leadership positions in their local communities. ●

What emphasis in farm management teaching?

(Continued from Page 124)

farm decisions which they thought should be given attention in vocational agriculture programs and to delete any they did not regard as appropriate or important. Attention was focused on the all day high school group. In order to provide a means by which the relative emphasis these "evaluators" attached to the various areas could be ascertained, each was asked to indicate the manner in which he would allocate 170 teaching days among the problem areas he was suggesting.

The problems and the allocation of teaching time recommended by the two groups have been summarized into thirteen broad problem areas. These problem areas together with the recommended allocation of teaching time are given herewith. It should be pointed out that both groups were thinking in terms of Iowa farming when making their recommendations. Hence the problem areas outlined are most appropriate for corn-belt agriculture.

Distribution of Time is Relative Not Absolute

The relative emphasis suggested by the two groups of "evaluators" was not greatly different. Both groups would give the greatest emphasis to the economic problems involved in organizing the crop and livestock programs. The "successful farmer" group suggested that somewhat more emphasis be given to problems surrounding the efficient utilization of farm labor than was true for the association fieldmen. The latter group, however, placed greater emphasis on training in farm accounting and farm budgeting.

The study was not concerned with the proportion of all available teaching time that should be allocated to farm management problems. Hence the mean number of days allocated to each area in an absolute sense is of much less significance than the relative emphasis given each area. The 170 days (the approximate number of teaching days in the school year) was used as the basis for making the time allocation because it is typical of the time devoted to farm management problems in many vocational agriculture programs. It provided a somewhat more realistic basis upon which the respondents could proceed than asking them to make a straight percentage allocation. The procedure employed in the study does not reflect an attitude on the part of the authors that farm management should be regarded as a distinct subject that should receive attention in a period set aside specifically for that purpose. Instead as suggested previously many phases of the subject can be given more meaning if they are integrated with the study of technical problems.

The principles underlying the problem areas previously outlined for the most part are well developed and are set forth in an adequate manner in a wide range of reference materials. But methods by which the high school vocational agri-

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Table 1. Evaluators' Distribution of Time for Teaching Selected Problem Areas in Farm Management.

Suggested Problem Areas in Farm Management	*Successful Farmers*	*Farm Business Ass'n Fieldmen*
I. Deciding on farming as an occupation: (weighing personal qualifications; requirements; comparing farming with other occupations; studying the financial and other requirements involved in getting established in farming.)	7.6	7.9
II. Using farm leasing arrangements: (choosing between renting and owning; selecting the proper type of lease; arriving at leasing terms; drawing up leases and family farming agreements..)	7.0	9.3
III. Using farm credit: (distinguishing between types of credit; selecting a source of credit; weighing the risks involved in using credit; budgeting costs and returns from the use of credit.)	6.7	7.4
IV. Buying a farm: (weighing the advantages and disadvantages of ownership; estimating the prospective returns from a farm; determining the adequacy of buildings; estimating the costs associated with ownership; using the capitalization process; evaluating the location, community, markets and roads.)	8.5	7.4
V. Organizing the cropping system: (determining the most profitable level of soil conservation and fertility maintenance; comparing the income producing ability of different crops; determining the costs associated with the production of various crops; selecting the most profitable combination of grain and forage in the rotation; estimating costs and returns from contouring and terracing; planning the field layout; making profitable use of commercial fertilizer.)	26.2	25.5
VI. Organizing the livestock program: (determining feed, labor, and capital requirements for different types of livestock; evaluating the risks associated with different livestock enterprise; timing the production of livestock.)	25.8	25.2
VII. Planning the farm power and machinery organization: (estimating machinery requirements; evaluating the returns from timeliness of operations; arriving at per unit cost of machine service; reducing machine cost through increasing annual use; choosing between owning a machine and hiring a custom worker; arranging for cooperative ownership of machinery; selecting the size of machinery to buy; choosing between new and used machines.)	13.4	12.9
VIII. Utilizing farm labor efficiently: (supervising hired labor; arriving at farm wage agreements; planning effective work patterns; organizing farm chore routines; distributing seasonal farm labor requirements.)	12.7	9.8
IX. Making efficient use of farm buildings: (determining cost and returns from buildings; choosing between alternative types of housing; providing flexibility in buildings; arranging buildings and farm lots.)	9.0	8.4
X. Adjusting production and marketing to changing prices: (adjusting livestock production to seasonal and cyclical price patterns; formulating price expectations; using outlook information; adjusting to public price and acreage control programs.)	12.2	11.6
XI. Adjusting to the risk involved in farming: (reducing risk; providing flexibility in production; diversifying to meet weather and price risk; using farm insurance.)	9.2	7.9
XII. Keeping farm accounts and analyzing the farm business: (selecting an accounting system; making entries; keeping production and feed records; summarizing the year's business; interpreting and using farm accounts; analyzing the farm business.)	15.6	17.2
XIII. Budgeting and planning the farm business: (obtaining information for budgeting purposes; estimating cost and returns from alternative farm plans; determining the opportunity cost of limited resources; estimating the relationship between size and income.)	14.1	16.7

What emphasis in farm management teaching?

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culture student can be taught to apply economic principles in making farm decisions need development and improvement.

Unfortunately the methods which have proved so successful in developing manipulative skills and in teaching improved production techniques are inadequate in the farm management area. This is particularly true in the supervised practice aspects of the program. For instance whereas the sow and litter project can provide an excellent exercise in selection, feeding and in disease and pest control, it does not provide training in making a number of the important management decisions involved in hog production. In most instances sow and litter projects must be conducted on such a limited scale that students do not have an opportunity to get a realistic picture of the relationship between costs and size of enterprise. Many of these small enterprises are uneconomic if all inputs are charged at a market rate or are valued in terms of their opportunity cost. In addition, important enterprise relationships are frequently ignored where the supervised practice program must be built around one or two enterprises.

Comprehensive Farming Programs Help in Teaching Management

One of the important management problems in an area where farms are multi-product units involves fitting the enterprises together. The vocational agriculture student who has only a sow and litter project does not face the problem of timing his production period to avoid conflicts with other enterprises nor does he have to decide how to allocate feed supplies or limited capital among competing enterprises. Crop production projects centered around an individual crop become even more unrealistic because of the complex relationships existing between certain of the crop enterprises. Hence a supervised farming program should involve a typical combination of enterprises conducted on an economic scale to provide realistic training in making farm management decisions. The immediate obstacles to establishing this type of a farming program while the student is in school in most situations would be a lack of capital and time on the part of the student. But even where these factors did not preclude it, few parents would accept the risk of heavy financial loss involved in allowing the student sufficient independence to give him realistic practice in decision making.

Since circumstances do not permit the development with most students of farming programs of sufficient magnitude and diversity to give practice in decision making on a realistic "whole farm" basis, traditional methods must be modified and new teaching devices developed if training in these important areas is to be effective. A number of possibilities merit greater trial. For instance, the use of a "class farm" may provide a decision making situation that at least has some of the aspects of a whole farm unit. Students have an opportunity to see the outcome of planning in which they have had a part. Such a method has the weakness that at best each student can have only a minor voice in decision making. In addition the administration of such a project can make excessively heavy demands on the time of the instructor. Because of these limitations and because of the resources required and the risk involved we would expect the class farm method never to be used widely. Other arrangements may be worked out which overcome some of the aforementioned drawbacks. Every community has interesting farms operated by capable managers that may be used as problem farms. Student committees can serve as "advisors" to the farmer. Cropping systems may be developed and livestock programs fitted to them. Alternative programs may be tested through budgeting procedures. Farm accounts may be kept and a farm business analysis made at the close of the year. While the student under most circumstances would not be provided an opportunity to see the soundness of his decisions tested by actual application he is at least provided a realistic situation for study. The farm operator may also serve as a valuable teaching resource through criticizing the recommendations made by students.

Developing Father-Son Relationships

In spite of certain drawbacks, perhaps the chief reliance for supervised practice in farm management should still center around the home farm. This would mean encouraging parents to give the student a small voice in the whole farm set-up in addition to more complete responsibility for a small segment of the farm business which typifies the now traditional project. As the student matures, definite family farming agreements can be evolved. Success of this type of program is largely dependent upon intelligent and whole hearted support of the families involved. Most parents probably underestimate the maturity of their youngsters and hence tend to be unnecessarily reluctant to give them a voice in decisions. This is probably the most convincing argument for supplementing practice on the home farm with work on a class farm or a problem farm where the student's thinking will be less under the domination of his parents. But under present day conditions it appears that most young farmers will have to begin their farming careers under some type of family farming agreement. Hence sooner or later they will face the problem of developing effective working relationships with their families. Helping the student to secure a voice in the management of the farm business at an early date can thus serve the two-fold purpose of providing training in decision making on a realistic unit as well as paving the way for an eventual family farming arrangement as the first step up the agricultural ladder. ●

Assistance needed by first-year teachers

M. J. SCOTT and L. J. PHIPPS, Teacher Education, University of Illinois

THE recognized problems of first-year teachers of vocational agriculture should have number one priority for professional assistance. Teacher trainers cannot give a first year teacher effective assistance with a problem until he has recognized the problem. Teacher trainers must start where their students are the same as other teachers. Of course, beginning teachers may be helped to recognize fundamental problems.

History of Study

It was this philosophy in the Division of Agricultural Education, University of Illinois, that motivated a study of the problems of beginning teachers in 1947-48. This study is reported in the August, 1949, issue of the *Agricultural Education Magazine*. A graduate course for first-year teachers developed after this study indicated the many serious problems of beginning teachers. This graduate course was offered to beginning teachers for the first time in 1950-51. The course is designed to assist beginning teachers think through and make satisfactory plans for solving the problems which they encounter during their first year of teaching. Class sessions involve a two-day workshop in August for planning the program of activities of each beginning teacher for his first month of teaching high school boys. Problems encountered by the first-year teachers from the time they start work on July 1 to the date of the work shop are also discussed. The workshop is held on the campus, and teachers utilize this opportunity, while they are back on the campus, to obtain references and bulletins and to review books which they plan to add to the libraries in their departments. After this initial workshop of all first-year teachers, the teachers are divided into small groups based on the geographical location of their departments for future meetings of the course. Each of these small groups meets once a month for a late afternoon and evening session. These monthly meetings are devoted to the problems of the teachers and the discussions are long and furious. State supervisors are invited to participate in these meetings. An experienced teacher may also be invited to participate in a meeting if a group of first-year teachers have a problem which they want to discuss with an experienced

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Humility like darkness reveals the heavenly lights.—Thoreau

Assistance needed by first year teachers

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teacher. Each teacher enrolled in the course is also visited at his school by an instructor of the course.

Forty-eight teachers began their professional careers in vocational agriculture during the first semester of 1950-51. Of this group, forty-two were officially enrolled in the course for first-year teachers. The other six attended some of the meetings of the course and were visited by one of the two instructors of the course.

Method of Collecting Data

The first-year teachers were asked to record their problems and bring them to their class meetings. These problems served partly as a basis for the class discussions and partly as a guide in giving individual help to the teachers during visits made by the instructors of the course to the schools where class members were teaching.

The problems suggested by the beginning teachers in vocational agriculture were divided into problem areas and summarized as to frequency of occurrence. In some cases the wording of teachers was used in recording problems for summarizing, but often the problems were reworded slightly in order that similar problems could be grouped together.

A summary of these problems of beginning teachers is indicated in the following tables.

Conclusions

Beginning teachers of vocational agriculture had problems which were discussed in their undergraduate training courses rather thoroughly, but which had little meaning for them until they met the problems on their jobs.

Many of the problems listed appear to be similar to those faced by experienced teachers. Peculiar situations in some communities seem to bring about specific problems which can only be answered in terms of local situations. Experienced teachers have often developed techniques for handling problems which appear to baffle many of the beginning teachers.

There is a strong possibility that the undergraduate teacher training program had an effect on a beginning teacher's ability to recognize his problems. This could mean that the more emphasis placed on certain phases of the curriculum in agricultural education, the more capable the students are in recognizing specific problems connected with these phases of agricultural education.

The summary indicates that the beginning teachers recognize a wide variety of specific problems. It seems clear, from the study, that the beginning teachers generally felt inadequate in their quest for teaching materials and their ability to file such materials for future use. The general area of the F.F.A. appeared to be clouded with problems for the beginning teachers. This may have been due to the difficulty of handling such problems adequately in campus courses; or because their student teaching centers did not provide many opportunities for them to work with local F.F.A. chapters.

The list of problems submitted by the beginning teachers clearly indicates the need for a course for first-year teachers. The entire profession should be interested in the trials, tribulations, and successes of beginning teachers. Beginning teachers carry the torch of progress and improvement in agricultural education.

TABLE I. Summary of Problems of Forty-Two Beginning Teachers by Problem Areas

Problem Areas	*Total Returns*
Selecting, Securing, and Filing Educational Materials	56
F.F.A.	55
Supervised Farming	42
Student Behavior and Guidance	41
Course Materials and Teaching Methods	32
Buildings and Facilities	32
Veterans	29
Adult-Farmer Classes	28
Advisory Councils	26
Organization of Time	25
Farm Shop	23
Administration of Vocational Agriculture Program	20
Relationships	16
Evaluation	11
Young Farmer Education	5
Total Problems	441

TABLE II. Problems of Forty-Two Beginning Teachers in Selecting, Securing, and Filing Educational Materials

Problems	*Number of Teachers Listing the Problem*
Books (selecting and purchasing)	9
Improving the filing system	8
Magazines (selecting and ordering)	7
Requisitioning materials	7
Providing more slide films and movies	7
Obtaining tools and equipment	4
Budget too low	3
Finding reference materials	2
Determining what shop tools are needed	2
Lack of reference materials	2
Inventorying materials in the department	2
Other	3
Total	56

TABLE III. Problems of Forty-Two Beginning Teachers in the Area of The Future Farmers of America

Problems	*Number of Teachers Listing the Problem*
Raising funds for the F.F.A.	10
Developing an F.F.A. program of work	7
Developing more interest in the F.F.A.	7
Planning initiations and degree work	5
How to get more participation and student responsibility on committees	5
Improving conduct at F.F.A. meetings	3
Organizing and planning F.F.A. trips—"Kansas City" or the "International"	2
Creating interest in keeping an F.F.A. scrapbook	2
Organizing the F.F.A. in a new department	2
Obtaining the F.F.A. manual and paraphernalia	2
Determining who is eligible for the Chapter Farmer degree	2
Other	8
Total	55

TABLE IV. Problems of Forty-Two First-Year Teachers in the Area of Supervised Farming

Problems	*Number of Teachers Listing the Problem*
Improving record books	7
How to develop interest in the understanding of a broad program of vocational agriculture	6
Working with town boys or boys without adequate facilities	4
Improving effectiveness of farm visitation	4
Securing wholesome cooperation from dad	4
Managing a chain-gilt program	3
Sectional fair entries	2

TABLE IV—(Continued)

Problems	*Number of Teachers Listing the Problem*
Registration of project animals	2
Obtaining more improvement projects	2
Managing school land	2
Starting programs of supervised farming	2
Other	4
Total	42

TABLE V. Problems of Forty-Two Beginning Teachers in the Area of Student Behavior and Guidance

Problems	*Number of Teachers Listing the Problem*
"Discipline" or improving behavior of students	18
Reducing the number of town boys or boys lacking interest in agriculture who are enrolled in an agriculture course	7
Working with upper-class boys in Agriculture I.	3
Reducing the amount of talking which interrrupts class	2
Coping with individual differences of students	2
Other	9
Total	41

TABLE VI. Problems of Forty-Two Beginning Teachers in the Area of Course Materials and Teaching Methods

Problems	*Number of Teachers Listing the Problem*
Developing course outlines	6
Planning teaching units and preparing daily lesson plans	5
Planning and conducting field trips	3
Teaching a small class	3
Teaching parliamentary procedure	2
Student notebooks (what should be required?)	2
How to teach soil testing	2
Non-vocational agriculture course planning	2
Other	6
Total	32

TABLE VII. Problems of Forty-Two Beginning Teachers in the Area of Buildings and Facilities

Problems	*Number of Teachers Listing the Problem*
Lack of storage space	5
Need more tools	4
Obtaining more efficient janitor service	4
Arrangement of facilities	3
Getting the interior of the building painted	2
Need laboratory facilities	2
Competition for shop space—bus storage, girls P.E. showers	2
Other	10
Total	32

TABLE VIII. Problems of Forty-Two Beginning Teachers in the Area of the Institutional On-Farm Training

Problems	*Number of Teachers Listing the Problem*
Using forms and reports	6
Reorganizing veterans program	4
Behavior of the veterans and their attitude toward fulfilling V.A. requirements	4
Administering the veterans program (selecting teachers and secretary)	4
Entering the students in the veterans program	4
Acceptable standards for self-employed veterans	2
Assisting veterans with reports to V.A. (getting payments, financial reports)	2
Other	3
Total	29

(Five tables included in the manuscript were omitted. *Editor*)

An experimental grass plot

JAMES YARDLEY
Instructor of Veterans
Panguitch, Utah

ABOUT one year ago the United States Department of Agriculture Council decided that an experimental grass plot was needed in Panguitch Valley to determine the best adapted and the most productive grasses for dry ranges and similar ranges where limited irrigation may be possible.

The Young Farmer's Organization was asked to co-operate with the USDA Council. Together they selected a site and immediately began working the ground.

The month prior to planting, the area was cleared of brush, marked off in furrows about twenty-eight inches apart, and irrigated. The first irrigation was applied about the third or fourth of April, 1950, and a second irrigation was applied two days after the seeding was completed, which was about the eighteenth of April. The area was divided into four parts called blocks 1, 2, 3, and 4. Another irrigation was applied about a month later on blocks 1 and 2, while blocks 3 and 4 were irrigated twice at monthly intervals.

The fence building and the plowing were done by the Young Farmers; the clearing of the ground, preparing of the seed bed, planting the plots, and irrigating were carried out by the USDA Council. The seed and assistance for planting were furnished by the Great Basin Research Center.

Ten species of grass were planted in separate plots in each of the 4 blocks making ten plots in each block seeded to a different kind of grass. A mixture was planted once within each of the 4 blocks. The plots consisted of four rows spaced approximately twenty-seven inches apart.

Cooperative Evaluation

Mr. A. Perry Plummer, the Range Conservationist of Great Basin Research Center, rated the grasses after one growing season. He stated in his estimation this plot was one of the best young plantings that had been his experience to rate. He attributed the excellent success to the splendid manner in which the details had been carried out by those in charge of the experiment. The two crested wheatgrass strains and the tall oatgrass produced a considerable amount of good seed.

The reason for this experimental plot was to show the farmers of Garfield County what might be done on the thousands of acres of arid ground. This area may be revegetated by artificial seeding, and if it is, it will mean thousands of dollars to farmers in the area. ●

The average salary of teachers, principals and supervisors is estimated at $2,750 for 1948-49 compared with $2,254 two years earlier.

Aerial photography

(Continued from Page 125)

many of them asked if we would take pictures of their farms.

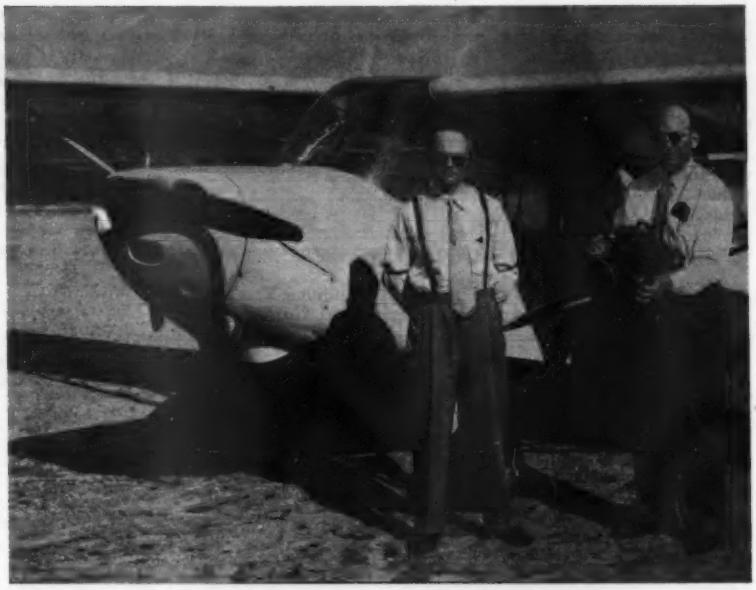
On subsequent flights we found that there are some things to keep in mind in order to get the best pictures. Generally speaking, the shutter speed of the camera should be set as fast as possible, depending on camera, film and light conditions. We use 1/400 of a second under general circumstances. The reason for this is that during the heat of the day in summer, when most pictures of this type are taken, convection air currents cause what is called "rough" or "bumpy" flying. This motion of the plane causes the camera to move on a horizontal axis in relation to the objective, thus the necessity for the fast shutter speed.

At first we used a rather fast film, Super XX, which is an excellent film for use with a fast shutter speed. However, this film proved too grainy and detail was lost when an enlarged print was made. A slower film with a rating of 50 is finer grained and has been more satisfactory.

It is important that panchromatic film be used as it is sensitive to green which is a predominant color in farm views.

Vibration is another factor one must guard against. The camera must not touch any part of the plane and it is best if the photographer's arms do not rest on the plane. The camera should not be held out directly into the air blast from the propeller. This can cause serious damage to some types of cameras, and is almost sure to cause enough vibration of the camera, or even of the film within the camera, to ruin the sharpness of the picture.

We have used several different types of airplanes for aerial photography and find that a cabin type, high wing monoplane is best for this type of photography. And the slower the plane will fly under complete control, the more satisfactory it is. The Piper Cub and the Aeronca Champion are excellent photographic planes. We prefer the Aeronca Champion because of its roominess. In this plane the photographer should sit in the front seat on an extra cushion or two and aim his camera out of the open window. Shooting through closed windows is not satisfactory. The pilot should fly to the desired position for the picture and when the photographer aims his camera he should slow the plane as much as possible and hold it in a slip until the picture is taken. By doing this the movement past the objective is greatly reduced and the altitude of the plane is such that the photographer merely needs to aim his camera out of the window and shoot.



The crew ready for work. The author is on the left.

While trying to point out some things that we have learned in getting the best pictures possible, I hope I have not discouraged anyone from trying to get and use aerial pictures. Very good pictures have been taken by rank amateurs with inexpensive cameras. Those who use colored 2" by 2" slides will find that they can get excellent aerial views with their 35mm. cameras.

I hope that many agriculture instructors will try the use of aerial pictures in the classroom. I am convinced that it is one of the best means of stimulating interest in home farm problems and a practical tool for use in helping the boy to study and solve his problems. ●

The centralized high school and vocational agriculture

J. C. LANE, Teacher, Brooksville, Florida

IF WE as educators believe that real education is the sum total of one's experience, then it must follow that to broaden these experiences in the lives of youth makes for a well-educated person.

Not many years ago it was the popular conception that an educated person was one who had a vast store of knowledge, facts, figures and statistics. This was a natural assumption inasmuch as it was a direct throwback to the days of the old Latin Grammar school and its stern schoolmaster with his hickory stick. The very first high schools in this country followed this general pattern in that knowledge was imparted for its own sake and not for the development of the whole child as we see him today.

Under this setup, the English teacher was interested only in sentence structure, parts of speech, conjugation of verbs, etc., while the science teacher was interested only in formulas and laboratory experiments. The history teacher was concerned only with names, dates, battles and places with no relationship whatsoever to the real needs of boys and girls. This was true not long ago in almost all the high schools. Each classroom was a separate and distinct entity within itself.

Pity the poor boys during these times who were enrolled in agricultural classes! These were the dullards or mentally retarded, and the boys who could not behave themselves in other classes. In other words, these first classes were made up of rejects, both socially and academically. Not only were the students considered in a lower caste, but the instructor of agriculture was not on an equal footing with the other staff members of the school. The least desirable location often went to the agricultural classes and their needs were considered last, if at all.

As the philosophy of education has changed in the past two decades so has the position of vocational agriculture. Today we find vocational agriculture on an equal footing with all academic subjects offered in the modern secondary school. In fact, in many of our smaller rural communities vocational agriculture is considered of vital importance in the educational program.

The centralization of our modern secondary schools has also resulted in a greater number of boys being eligible for enrollment in vocational agriculture classes. Many of our schools that operate departments of vocational agriculture at present would not be able to do so if it were not for the centralized setup. Because of this we are now meeting the needs of more youngsters than ever before.

Centralization in the secondary schools has brought about many changes that have proved to be of great value in the

development of our present-day vocational agriculture programs. However, it has brought with it certain conditions that are somewhat undesirable to the pupil or the program; namely, lack of time at home for supervised farming and lack of time at school for exploring fully all of the student's interests.

Probably one of the greatest problems the agricultural student is confronted with is the lack of time to carry on a well-rounded, supervised farming program. Many boys leave home early in the morning and return late in the afternoon since they live long distances from school.

In our modern schools there are many activities competing for the student's time and interest. No boy can do his best as an agricultural student when his time and interest are divided between so many activities.

In the last analysis, the advantages of centralization far out-weigh the inconveniences and the position of vocational agriculture has never been stronger than it is at the present time. ●

Characteristics of superior teachers of vocational agriculture

. . . a principal's point of view

N. L. DILLARD, Principal, Yanceyville, North Carolina

THE rural schools of North Carolina must of necessity depend for the greater part, upon agriculture for their very existence. This statement, though simply constructed and simple in meaning, carries with it implications and connotations which should register a depth of significance to teachers of vocational agriculture far beyond the comprehension of the average individual. This statement is true, however, because the rural school is a product of the human and material resources in which it is located. Beyond these resources, human and material, the rural school dare not and cannot go. The thoughtful principal, then, is diligently concerned and is careful to weigh and to evaluate his school program in the light of his resources.

Patterns of Maturity

From the point of view of the rural school principal, the teacher of vocational agriculture has a real and valuable contribution to make in that what he does, or does not do affects the total on-going program of the school. This being the case, and supposing that the vocational agriculture teacher is well trained with a strong background of information, what are some of the traits, characteristics, or qualities which the principal might expect to see in this teacher? Expressed simply, he would expect to see behavioristic patterns of maturity. What are some of the signs? First, a mature person has developed sufficient social skills to provide him a feeling of adequacy in social situations.

A teacher with a strong background of information who has so little social poise that he is unable to go to the home of one of his pupils for dinner, or who constantly makes the wrong approach in dealing with his young and adult farmers, lacks the poise necessary to carry forward a progressive and aggresive farm program in his community.

Secondly, the principal wishes to see on the part of this teacher a willingness to accept himself and his program as having worth. When he has respect for his own personality, he ceases imitating others. When he is convinced in his own mind that his own program has merit he ceases being overly concerned about what other teachers are doing. It simply means that in his own mind and in his own way he has set up certain objectives for himself. These objectives are based upon the needs of his students and adult farmers and are revised from time to time in the light of conclusive evidence of the needs of the student and adult farmers. Thus, in proportion as he is able to show signs of this quality or trait is there evidence of the mature teacher.

A third characteristic of the mature teacher of vocational agriculture is his ability to be self-directing. This implies the ability to work out for one's self the solution to the many problems which confront him daily. A mature person dislikes being told what to do, on the other hand he wants to work out for himself the best solution. An immature person depends upon others for guidance and direction and as a result is dependent upon the whims and attitudes of others. Problem solving techniques are basic skills of the mature person. As children when facing difficult problems, we turn to our elders for counsel and guidance expecting them to solve our difficulties. As we became older we accepted greater responsibility for the solving of our problems. Therefore, a teacher who must always depend upon the principal or other superiors for the making of his decisions is likely to be an immature person. Intelligient decisions then are the traits of the mature person.

A fourth characteristic of maturity is willingness to accept reality. The vocational agriculture teacher must constantly ask himself, what is the real situation. Should he fail to do this, there is the possibility that his program will fail to meet the needs of his particular community. Too, he often has limited facilities and equipment. Here he must realize that he cannot have all of the equipment he wants, but, on the other hand, he must make the most effective use of the materials and facilities that are available. Maturity involves facing the realities of the existing environment, knowing our own shortcomings, weaknesses and strength and working with our full talents to achieve the kind of reality we desire.

A fifth indication of teacher maturity which the teacher of vocational agriculture must by all means possess is the ability to work cooperatively with other members of the school staff. There are teachers who must be the "stars" of the show, they can only perform well when everyone stands back and gives them the "right of way." Like a child, this type of teacher in his immature mind seeks praise, recognition, and identification as a means of satisfying an inner craving. He is unable to work with others and share with others the credit for a program. There are others whose capabilities would certainly make a distinct contribution to his efforts but to call upon them for assistance would indicate a weakness on his part, therefore, he "muddles" through rather than call for aid. The mature teacher not only calls for help when he needs it, but he also plans his program in the light of the total school program thereby reducing to a minimum unnecessary confusion and conflicts. He sees himself as making a contribution to the group and the on-going process of the entire school.

Effective Public Relations

Finally, teachers of vocational agriculture can do two things in the field of public relations if they are mature in their attitude. First, they can and should let the public know what they are doing; secondly, because of their wide contacts they often have opportunities to interpret to the public the policies of the school in a favorable light. These two complement and supplement each other, for it is clearly seen that if the public is aware of their programs and at the same time looks at the overall program in a favorable light, the teachers of vocational agriculture have a more wholesome atmosphere in which to work. Therefore, if the teachers are mature in outlook and attitude they are not only concerned with their own programs, but will create favorable public sentiment for the total school program with a firm conviction that they will be the ultimate beneficiaries.

From the principal's point of view then these are the qualities of the mature teacher of vocational agriculture; (1) Social Adequacy; (2) A Willingness to Accept Himself and His Program as having Worth; (5) The Ability to be Self-Directing; (4) A Willingness to Accept Reality; (5) A Willingness to Work Cooperatively with Other Staff Members; and (6) The Creation of Favorable Publicity for his Own as well as the Total School Program. ●

We who work with the mind and the spirit are surrounded by unlimited riches. As John Ruskin pointed out, "Not what you have, but what you love, determines your wealth."

Exchange of ideas solves hard problems.

Photo by J. K. Coggin, North Carolina State College
Speed Graphic 2¼" x 3¼"
F/11 - 1/100 second with K2 filter